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Bureau of Labor Statistics,
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The April *Review*

Michael C. Wolfson and Brian B. Murphy extend the debate on income inequality from the focus on the United States that appeared in last December's *Review*. The question addressed here is "How do recent levels and trends in income inequality in the United States compare to some outside standard?" The standard in this case is the economy of Canada. They conclude that the stereotype of a richer but increasingly more unequal United States is only partly true. While indexes of inequality in the United States were found to be higher than those in Canada and rising, indexes of polarization were falling in both countries. And, given their assumptions about purchasing power parities of American and Canadian dollars, a substantial fraction of Canadian families are actually better off than their U.S. equivalents at similar points in the income distribution.

Alan B. Krueger and Aaron Siskind weigh in with a late entry to the debate about bias in the Consumer Price Index (CPI). They model changes in self-reported financial well-being as a function of changes in CPI-adjusted real income. If that adjustment properly deflates income, their regression of the net fraction of families that report being better off on the actual fraction reporting real income increases should have a slope of one and an intercept of zero. The model can then test a range of possible biases in the CPI to see which yields results closest to the benchmark of "one and zero." The results of these tests suggest that the "unadulterated CPI-U-X1" was furthest from rejecting these values.

Cynthia Engel examines the trucking industry in some detail. This cyclically sensitive industry has undergone large structural changes as a result of deregulation, new technologies in logistics and distribution, and increased competition among modes of transportation. As a result, the Nation's freight bill has hit an all-time low, but increasing workloads and less attractive pay have led to high labor turnover and persistent driver shortages.

Anne Winkler provides a sociologist's perspective on trends among dual-earner families. Most of the sorting and pairing processes involved in forming such couples tend to yield unions of persons on similar points on their gender-specific earnings distributions. Because average earnings of men are higher than those of women, this leads to a tendency for the husband to be the higher earner. However, in a growing number of cases, the wife is the primary earner for the family. From the sociologist's point of view, this leads to interesting questions of the nature of decisionmaking within such a family.

21 million work at home

More than 21 million workers did some work at home for their primary employer in May 1997. Fewer than one in five of these were being paid a wage or salary for the time worked at home. Of the 3.6 million wage and salary workers doing paid work at home, 88 percent were in "white-collar" occupations such as professional specialty, executives and managers, sales, and administrative support.

About 6.5 million self-employed persons did some work at home in May 1997. This was more than half of all the self-employed who were at work during the survey reference week. More than 4.1 million of the self-employed indicated they were working in home-based businesses. These home-based businesses were concentrated in the service industries. In terms of occupation, about two-fifths of home-based workers (1.7 million) were managers or professionals.

An additional 1.8 million workers did some work at home on a second job, bringing the total number of persons who worked at home to 23.3 million, including 1.2 million who had two jobs and worked at home on both.

For more information, see news release USDL 98–93, *Work at Home in 1997*.

Flextime more common

The number of full-time wage and salary workers with flexible schedules that allowed them to vary the time they began or ended work was about 25 million in May 1997. The proportion of workers with such schedules had risen sharply from the 15.1 percent recorded in a similar survey in May 1991, to 27.1 percent. The increase was widespread among demographic groups, occupations, and industries.

Other findings from the May 1997 work schedules supplement to the Current Population Survey included the fact that about 15.2 million persons (out of 90.5 million full-time wage and salary workers) normally worked a shift other than a regular daytime schedule. The most common alternative schedules were evening shift, an employer-arranged irregular schedule, night, and rotating shift.

While flexible schedules are much more common, the great majority of workers still start some time between 6:30 and 9:30 a.m. with the biggest bloc (32.6 percent) coming in between 7:30 and 8:29 a.m. The most common quitting hour was 4:30 to 5:29 p.m.

For more information, see news release USDL 98–119, *Workers on Flexible and Shift Schedules in 1997*.

The *Review* Online

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New views on inequality trends In Canada and the United States

Analysis reveals that, from 1974 to 1995, a large portion of Canadian families had absolutely higher purchasing power than their U.S. counterparts; in both countries, individual earnings polarization fell over the past decade

Michael C. Wolfson
and
Brian B. Murphy

Ce qui est simple est toujours faux,
ce qui ne l'est pas est inutilisable
[Whatever is simple is always wrong,
whatever is not is unusable]
—Paul Valéry

Conventional wisdom has it that U.S. society is both richer and more unequal than Canadian society and that the two have become more unequal in recent decades. Moreover, increasing globalization has raised concerns about a "race to the bottom"—that global competition in the production of traded goods and services is forcing countries with more generous social transfers or more egalitarian wage structures to abandon these mechanisms or risk losing out. This article addresses such conventional wisdom by focusing on a comparison of income inequality in Canada and the United States over the past two decades. Given the similarity of the two countries' societies, as well as their close and growing economic integration, with the highest level of bilateral trade of any two countries in the world, this comparison provides an opportunity to assess the possible impact of globalization on the convergence of income inequality.

The distribution of income in any society is complex and multifaceted. The analysis that follows endeavors to give an overall picture by presenting data from several perspectives. In particular, it starts with data on the labor market from an individual viewpoint and then moves to the broader perspective of families and their disposable incomes.

Michael C. Wolfson is a director general with Statistics Canada, Ottawa, Ontario, Canada. Brian B. Murphy is an economist in the same organization.

A number of intriguing results emerge from the analysis. One is that, even though the U.S. economy appears better off in terms of total output per capita, families (including unattached individuals) living in the United States are not necessarily better off, in terms of disposable income, than their Canadian counterparts. Indeed, roughly half of Canadian families had disposable incomes in 1995 that gave them higher purchasing power than otherwise comparable U.S. families. The reason is that the very rich in the United States pull up the average income much more than in Canada, while those at the bottom of the U.S. income spectrum have less purchasing power than those at the bottom in Canada.

One major factor in these comparisons is the labor market. On average, U.S. workers make more money than their Canadian counterparts; however, the numbers of individuals working for pay in the two countries do not accord with the usual impressions given by comparing official unemployment rates. Also, while trends in the distribution of labor income were quite different in the United States and Canada in the decade from the mid-1970s to the mid-1980s, the following decade, up to 1995, saw much more similar patterns of change in the two countries.

In terms of labor market inequality, the results of the analysis accord with the conventional wisdom, namely, that inequality has been increasing. However, polarization is an aspect of income distributions (as is the incidence of poverty) that is distinct from inequality, and polarization itself does not always increase when inequality in-

creases. Perhaps surprisingly, this was in fact the case for the U.S. earnings distribution between 1985 and 1995: the proportion of workers with earnings close to the median *rose* over the period, as it did in Canada. In other words, both countries experienced the *opposite* of a "disappearing middle class" in their earnings distributions.

What matters more directly to families than individual labor income inequality or polarization is their disposable income—labor income, plus investment returns, plus government transfers, less income taxes and payroll taxes. Family disposable income therefore depends not only on the labor market in each country, but also on national, State, Provincial, and local government social programs and taxation policies (as well as the correlations among husbands', wives', and other family members' incomes). From this perspective, Canada is clearly "kinder and gentler": both inequality and polarization are considerably lower, and incomes at the bottom of the spectrum are higher, than in the United States. Moreover, between 1985 and 1995, both inequality and polarization of family disposable income fell in Canada, while both rose in the United States.

One trend that was similar concerned the low-income population, which, defined simply as those families with half the median family income or less, *fell* in both countries. The U.S. incidence of low income was about 50 percent higher than Canada's, but contrary to trends based on the official (absolute) U.S. poverty line, low income defined in this relative manner fell in the United States from 1985 to 1995.

Macroeconomic context

To place the analysis in context, charts 1 and 2 show trends in two sets of widely used indicators for Canada and the United States over the past 25 years. The trends in gross domestic product (GDP) per capita in chart 1 support the conventional wisdom that the U.S. economy both is richer and has been growing at a somewhat faster rate than the Canadian economy. The reason there are two curves for the U.S. trend is to indicate the sensitivity of this comparison to alternative ways of converting U.S. GDP per capita from U.S. dollars into Canadian dollars of equivalent purchasing power. The standard approach is to use purchasing power parities rather than the exchange rate, but there are several such measures available. (See appendix.) In the comparison presented in chart 1, the specific measure chosen does not affect the overall result, but it will be important in subsequent comparisons between the two countries.

Chart 2 shows trends in two sets of official labor market indicators. Employment-to-population ratios have been trending up slowly in both countries, although the U.S. rate has moved ahead of Canada's since the late 1980s. Unemployment rates, which once were similar in the two countries, began to diverge in the early 1980s, with the Canadian rate now almost double that of the United States. This suggests a weaker labor market in Canada.

Workers and labor market earnings

Given the foregoing background, this section focuses on individual incomes from working. The next section considers family disposable income.[1]

Average earnings. The major source of income for the vast majority of families is from working. Income is defined in this article to include both employment and self-employment income, or "earnings," for short. Table 1 shows earnings for the United States and Canada over the past two decades.[2] Both mean and median earnings are presented for all "working-age" individuals, defined as those aged 18 to 64, and also separately for men and women. In this table, dollar amounts are "own-country" currencies.

These earnings data support the view that the U.S. economy has been growing faster overall than Canada's. From the information in the first row, mean earnings in Canada grew by (Canadian) $600 over the first decade and then by $900 over the second decade, while in the United States, it grew by (U.S.) $1,300 and then by $2,400.[3] However, median earnings, shown in the second row, fell in Canada from 1974 to 1985 and then rose by more than $1,000, while in the United States, median earnings grew by about $1,400 and then $800 during the respective periods.

These mean- and median-earnings figures reveal somewhat different trends than does GDP per capita, shown in chart 1, which grew in both countries more from 1974 to 1985 than from 1985 to 1995. Part of the reason for this difference as to which decade saw faster growth is that the population of earners has also been changing. (Yet another perspective on these rates of income growth is given for family disposable income in the section of the same name.)

The third row of table 1 shows the proportion of individuals aged 18 to 64 who reported at least $500 (in 1995 Canadian dollars) in earnings for the year. This threshold has been used to define "effective labor force participant," the satisfaction of which is the basic criterion for someone's being an "earner" in this analysis. The concept differs from the official employment-to-population ratio, which is simply the average of the 12 monthly ratios over a calendar year. Instead, status as an effective labor force participant is based on nontrivial annual labor force attachment, defined in terms of receiving a minimal amount of income from work over the calendar year.[4]

The proportion of the working-age population who were effective labor force participants grew a bit faster in the United States than in Canada. Interestingly, however, both countries had essentially the same proportion of working-age effective

Chart 1. **Real gross domestic product per capita, Canada and United States (using two measures of purchasing power parity), 1970–95**

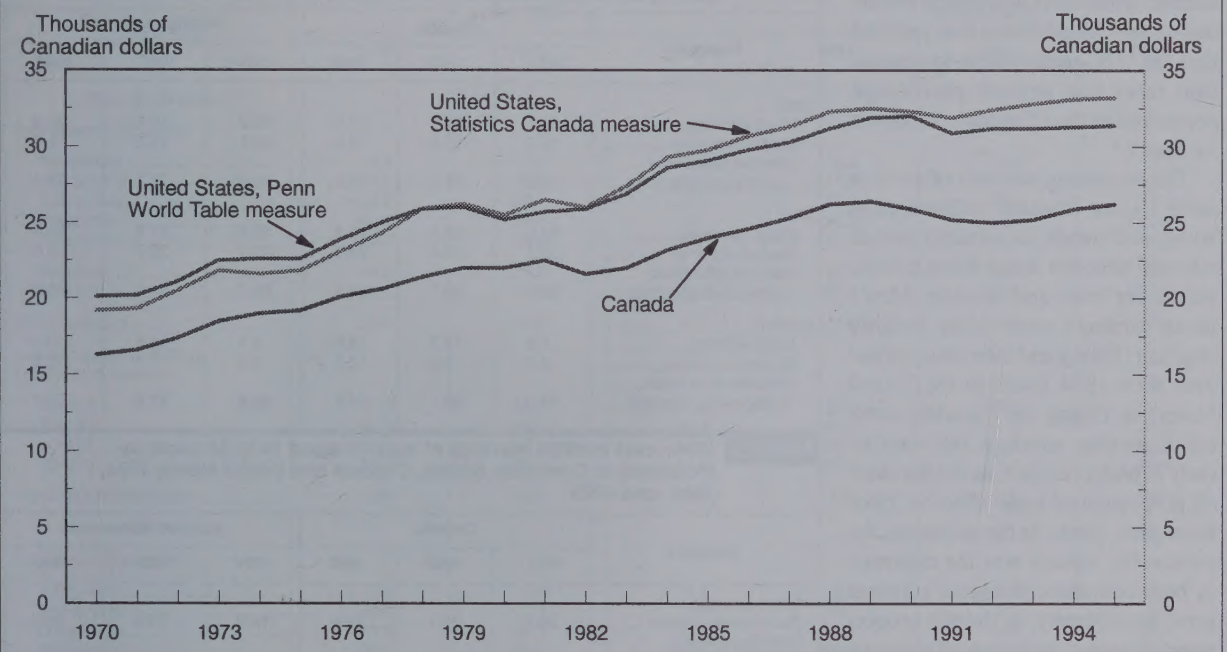
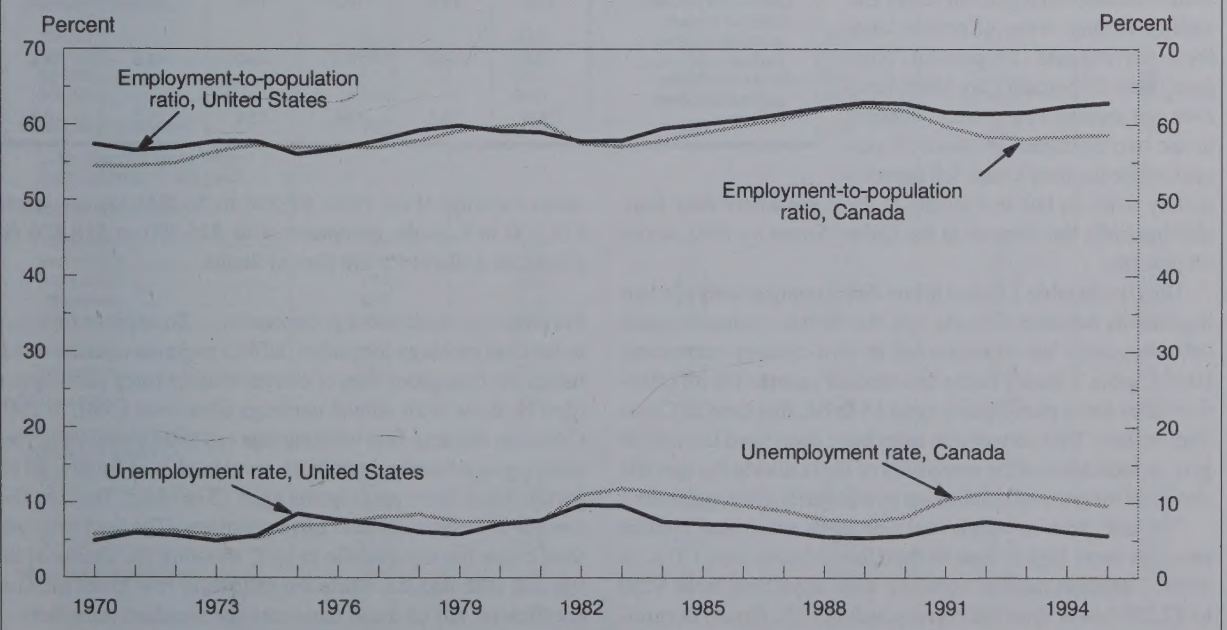


Chart 2. **Employment-to-population ratio and unemployment rate, Canada and United States, workers aged 15 and older, 1970–95**



labor force participants in 1995, notwithstanding the fact that Canada's unemployment rate was almost double that of the United States that year and that the U.S. employment-to-population ratio was several percentage points higher than Canada's, as shown in chart 2.[5]

The remaining two sets of rows in table 1 show dramatic differences in levels and trends in earnings and in rates of effective labor force participation for men and women. Men's mean earnings were either roughly stagnant (falling and then rising to just over their 1974 levels in the United States) or falling (in Canada), while men's median earnings fell consistently in both countries, as did the overall proportion of male effective labor force participants. In the meantime, the picture for women was the opposite: in both countries, women's earnings grew significantly, as did the proportions of women who were effective labor force participants. Specifically, in 1974, 94 percent of Canadian men were effective labor force participants, about 4 percent more than in the United States; but 4 percent fewer Canadian women were effective labor force participants (55 percent, compared with 59 percent). By 1995, however, the women's rates were identical in the two countries, at about 73 percent, while the men's rates fell approximately twice as fast in Canada, to the point where they were also basically the same as in the United States by 1995, about 86 percent.

Table 1. Mean and median earnings of workers aged 18 to 64 years, in own-country thousands of 1995 dollars, and effective labor force participation, Canada and United States, 1974,1985, and 1995

Category	Canada			United States		
	1974	1985	1995	1974	1985	1995
Total:						
Mean earnings	20.4	21.1	21.9	18.2	19.6	21.9
Median earnings	15.8	15.5	16.5	12.7	14.2	15.0
Effective labor force participants (percent)	74.2	78.9	79.3	73.9	77.1	79.3
Men:						
Mean earnings	32.0	29.4	28.3	28.8	27.9	29.3
Median earnings	30.1	26.4	24.3	26.4	22.7	22.0
Effective labor force participants (percent)	93.6	89.7	86.1	89.9	87.0	86.2
Women:						
Mean earnings	8.9	12.7	15.6	8.3	11.6	14.8
Median earnings	2.3	7.2	10.2	2.9	7.1	10.0
Effective labor force participants (percent)	54.9	68.1	72.5	58.8	67.6	72.7

Table 2. Mean and median earnings of workers aged 18 to 64 years, in thousands of Canadian dollars, Canada and United States, 1974, 1985, and 1995

Category	Canada			United States		
	1974	1985	1995	1974	1985	1995
Mean earnings:						
Own-country dollars	20.4	21.1	21.9	18.2	19.6	21.9
Statistics Canada purchasing power parities	20.4	21.1	21.9	20.1	25.2	27.4
Penn World Table purchasing power parities	20.4	21.1	21.9	18.9	22.0	24.5
Median earnings:						
Own-country dollars	15.8	15.5	16.5	12.7	14.2	15.0
Statistics Canada purchasing power parities	15.8	15.5	16.5	14.0	18.3	18.8
Penn World Table purchasing power parities	15.8	15.5	16.5	13.2	15.9	16.8

The data in table 1 do not allow direct comparisons of earnings levels between Canada and the United States, because dollar amounts are all expressed in own-country currencies. Hence, table 2 shows mean and median income for all effective labor force participants aged 18 to 64, this time in Canadian dollars. Two conversion rates have been used in order to give an indication of the sensitivity of the results to the specific choice of measure of purchasing power parity. (See appendix.)

The one year in which real Canadian mean and median earnings were higher than in the United States was 1974. In 1995, Canadian median earnings were anywhere from $250 to $2,250 lower than the corresponding U.S. figure, depending on the measure of purchasing power parity used, while mean earnings were from $2,500 to $5,500 lower—about $16,500 in Canada, compared with $16,800 to $18,800 (in Canadian dollars) for the United States.

Earnings inequality and polarization. To explore trends in individual earnings inequality, table 3 presents a series of statistics for four groupings of effective labor force participants (that is, those with annual earnings of at least $500, in 1995 Canadian dollars): first working-age (18 to 64 years) men, then working-age women, then both combined, and finally, all effective labor force participants aged 15 or older. The first five rows of data show quintile earnings shares. The next two rows then break the top quintile in half, showing the shares of the 9th and 10th deciles, while the following row gives the Gini coefficient. All of these measures are standard indicators of income inequality.

Table 3. Earnings inequality and polarization indicators for effective labor force participants, 1974, 1985, and 1995

[In percent]

Quintile or decile and indicator	Canada			United States		
	1974	1985	1995	1974	1985	1995
Men, 18–64 years						
Indicators of inequality:						
1st quintile	4.8	3.4	3.5	4.2	3.5	3.4
2nd quintile	12.6	10.6	10.5	11.9	10.4	9.5
3rd quintile	18.4	18.1	17.6	17.9	16.9	15.3
4th quintile	24.0	25.8	25.2	24.2	24.5	22.5
5th quintile	40.2	42.0	43.2	41.9	44.7	49.2
9th decile	15.2	16.6	16.6	15.7	16.4	15.7
10th decile	25.0	25.3	26.6	26.2	28.3	33.5
Gini coefficient	.352	.392	.401	.375	.413	.455
Indicators of polarization (percent of median):						
75–125	33.6	23.8	25.2	31.3	23.8	24.5
75–150	46.2	35.7	35.8	44.0	34.7	34.3
60–200	67.3	58.8	57.1	65.1	57.4	55.4
60–225	70.0	63.0	61.9	67.3	61.4	59.1
"Polarization coefficient"	.278	.363	.363	.302	.376	.396
Women, 18–64 years						
Indicators of inequality:						
1st quintile	3.2	2.8	3.1	2.8	2.8	3.1
2nd quintile	9.6	9.1	9.3	9.1	9.3	9.4
3rd quintile	18.0	17.1	17.1	17.3	16.9	16.1
4th quintile	26.0	26.3	25.9	26.3	25.7	24.4
5th quintile	43.2	44.7	44.6	44.4	45.2	47.0
9th decile	17.1	17.8	17.6	18.0	17.8	17.2
10th decile	26.0	26.9	26.9	26.4	27.3	29.8
Gini coefficient	.408	.426	.421	.424	.428	.441
Indicators of polarization (percent of median):						
75–125	22.5	20.0	20.3	20.5	21.5	22.4
75–150	33.8	28.9	29.9	29.6	31.6	30.4
60–200	54.7	50.4	51.5	50.4	52.3	52.7
60–225	58.4	54.9	56.2	55.3	55.9	56.8
"Polarization coefficient"	.389	.436	.425	.436	.429	.424
All effective labor force participants, 18–64 years						
Indicators of inequality:						
1st quintile	3.4	2.9	3.1	2.8	2.8	3.0
2nd quintile	10.4	9.3	9.5	9.4	9.2	9.0
3rd quintile	17.4	16.9	17.0	16.6	16.0	15.2
4th quintile	25.0	25.9	25.4	25.1	24.7	23.0
5th quintile	43.8	45.1	45.0	46.1	47.4	49.8
9th decile	16.5	17.8	17.3	17.2	17.4	16.4
10th decile	27.3	27.3	27.7	28.9	30.0	33.4
Gini coefficient	.407	.428	.423	.436	.447	.467
Indicators of polarization (percent of median):						
75–125	24.1	21.6	21.7	21.2	21.2	22.9
75–150	35.4	29.7	32.0	31.4	30.7	31.6
60-200	57.3	50.8	52.5	52.4	50.6	52.0
60–225	61.5	55.6	57.2	56.5	55.0	56.0
"Polarization coefficient"	.374	.427	.407	.414	.433	.425

Table 3. Continued—Earnings inequality and polarization indicators for effective labor force participants, 1974, 1985, and 1995

Quintile or decile and indicator	Canada			United States		
	1974	1985	1995	1974	1985	1995
All effective labor force participants,15 years and older						
Indicators of inequality:1st quintile	2.7	2.4	2.7	2.2	2.3	2.6
2nd quintile	9.5	8.6	9.0	8.3	8.5	8.5
3rd quintile	17.1	16.7	16.8	16.2	15.7	15.0
4th quintile	25.4	26.1	25.6	25.5	24.9	23.1
5th quintile	45.3	46.2	45.8	47.9	48.5	50.8
9th decile	17.0	18.1	17.6	17.7	17.7	16.7
10th decile	28.3	28.0	28.2	30.1	30.8	34.1
Gini coefficient	.431	.444	.436	.463	.465	.481
Indicators of polarization (percent of median):						
75–125	22.2	19.7	20.6	20.9	19.2	22.0
75–150	32.2	28.3	29.8	28.2	28.6	30.5
60–200	53.7	48.1	50.6	48.1	47.8	49.8
60–225	57.9	52.7	55.1	52.7	52.7	53.7
"Polarization coefficient"	.408	.454	.431	.463	.462	.440

Another way to characterize income distributions is in terms of polarization. This notion was motivated by the 1980s debate on the "disappearing middle class." While the distinction is not widely appreciated, polarization and inequality are different concepts. For example, income distributions can change in ways such that polarization goes up while inequality goes down, or vice versa. (See appendix.)

Accordingly, the remaining rows for each of the four population groups in table 3 show polarization indicators. One such indicator gives the proportions of the population with earnings in various ranges straddling the median level of earnings. For example, the row labeled "75–150" gives the proportion of earners with earnings between 75 percent and 150 percent of the median, one possible definition of the middle class. If this proportion falls, we can usually conclude that the proportion of middle-range earners is falling, so that the distribution is becoming more spread out from the middle, or more polarized. The last row shows figures for a summary measure of polarization that is analogous to the Gini coefficient. (See appendix.)

None of these indicators provides a complete measure of trends in inequality or polarization. Rather, the widely accepted "gold standard" for inequality comparisons is the underlying Lorenz curves, and there are analogous polarization curves. In comparisons of two income distributions, however, either of these kinds of curves can cross (and not necessarily in the same way), in which case an unambiguous ranking of inequality or polarization is impossible. Thus, even though no graphs of the underlying Lorenz or polarization curves are presented, the conclusions have in all cases been based on inspection of these underlying curves.

The results in table 3 for men generally accord with the widely held views that earnings inequality was higher in the United States than in Canada[6] and that inequality has been increasing in both countries,[7] though the data presented here are not directly comparable to data presented in earlier studies. One reason is that many studies focus on subsets of the population, such as those with full-time, year-round attachment to the labor force; or they consider hourly rather than annual earnings, and then only for one (possibly "average") job, even if the individual had more than one over the year; or they exclude self-employment earnings. In contrast, the results presented in this article cover everyone with nontrivial attachment to the labor force on an annual basis, as well as all their incomes from working.

Another reason for the different conclusions may be the choice of statistical indicators. The inequality measures used here have been carefully selected from the viewpoint of "construct validity." They can never be inconsistent with orderings given by Lorenz curves, unlike widely used statistics such as the 90–10 percentile cutoff ratio, the logarithm of this ratio, or the variance of the logarithms. Moreover, one set of measures has been designed explicitly to measure polarization.[8]

In any case, there are interesting differences in trends between Canada and the United States. Virtually all the growth in earnings inequality in Canada occurred during the 1974–85 period, with apparently no statistically significant changes[9] between 1985 and 1995, although the quintile shares indicate that the underlying Lorenz curves cross, so that unequivocal statements about earnings inequality trends are not possible.

From the last five rows in the section for men in table 3, it is clear that there was a decline in the number of "middle-

class jobs" (or, more accurately, of men with middle-range earnings) from 1974 to 1985 in Canada, but, if anything, a slight increase from 1985 to 1995. For example, the proportion of men with earnings between 75 percent and 150 percent of the median fell significantly, from 46 percent of all effective labor force participants to 36 percent, between 1974 and 1985, but then remained essentially unchanged up to 1995. This trend is reflected in the movements of the summary index of polarization, shown in the last row of this section of the table. (Higher values imply greater polarization.) In contrast, polarization increased for U.S. men in both periods: in 1974, the number of "middle-class earners" was already lower than in Canada—44 percent, compared with 46 percent, for those with earnings 75 percent to 150 percent of the median. The proportion of U.S. men with earnings in this range fell somewhat less than in Canada through 1985, but then it fell again, marginally, up to 1995, while Canada's figure remained static.

Charts 3 through 5 give more detail on the underlying changes in the income distributions in the two countries by showing decennial earnings growth rates at each point throughout the income spectrum.[10] For example, the top panel of chart 3 shows that, for the first two-thirds of U.S. male effective labor force participants, real earnings fell over the 1974–85 period, while the bottom panel of chart 4 indicates that virtually all women in both countries had earnings growth of at least 10 percent per decade from 1985 to 1995.

When these "growth-rate curves" are monotonically increasing, it follows logically that the underlying Lorenz curves do not cross and that inequality is increasing.[11] Interestingly, the curves shown in the charts are generally not monotonic (not even if they were "smoothed" to remove the effects of sampling variability and respondents' proclivity to report their incomes in rounded-off numbers), so that no rigorous statements about changes in inequality are possible.

For example, the bottom panel of chart 3 shows that, in both countries, men's earnings inequality over the 1985–95 period generally increased for the first 15 percent of the population, fell over the next 15 percent or so, was unchanged for the next 30 percent or 40 percent, and increased for the remaining population. Corresponding changes in quintile and decile shares are shown in table 3; notwithstanding the changes in Gini coefficients in the table (increasing by about 0.04 in the United States and about one-fourth as much in Canada), the bottom panel of chart 3 shows qualitatively very similar patterns of change in the two countries, with the U.S. and Canadian growth-rate curves nearly superimposed on each other.[12]

In contrast, the top panel of chart 3 shows that the two countries' growth-rate curves for men were quite dissimilar over the 1974–85 period. The United States had an unequivocal increase in earnings inequality for male effective labor force participants throughout almost the entire earnings spectrum (the bottom decile being the main exception), while in Canada, earnings inequality for men increased at a sharper rate than in the United States for most of the earnings spectrum, although it declined *within* the upper decile. The chart shows generally monotonically increasing growth rates for the middle 80 percent of the population of male effective labor force participants for both countries, but a somewhat lower slope in the United States, except in the uppermost tail of the earnings distribution.

The second section of table 3 and both panels of chart 4 show the corresponding statistics for women. In the table, the quintile and decile shares indicate that the underlying Lorenz curves were crossing. This is also evident from the chart, in which the growth-rate curves are definitely not monotonic, so no general statement about the changes in earnings inequality among women is possible for either country, for either decade. As was the case for men, growth-rate curves for women were dissimilar over the 1974–85 period, but similar in shape for 1985–95.

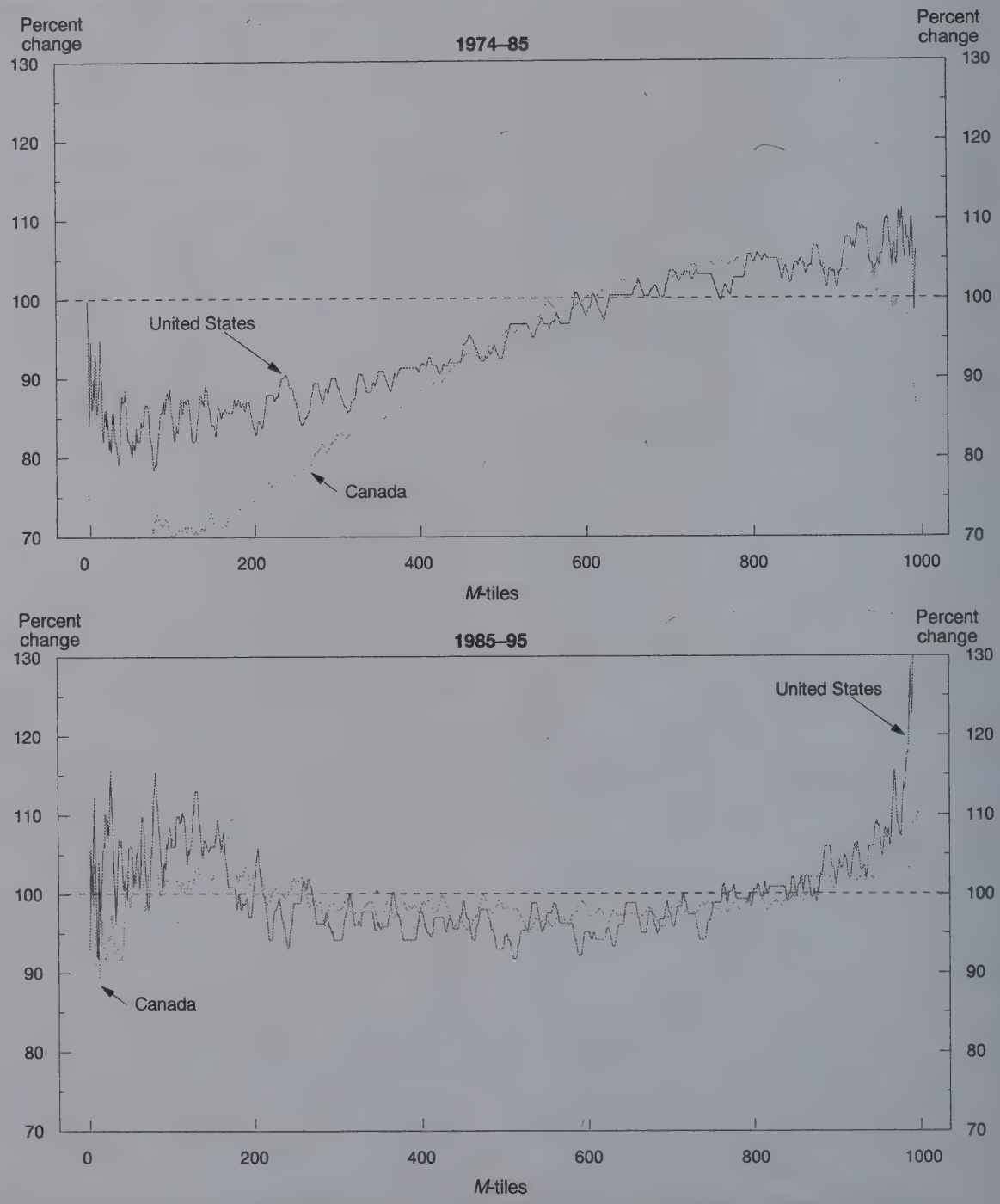
Polarization of women's earnings, however, was unambiguous in Canada, rising from 1974 to 1985 and then falling. In the United States, the underlying polarization curves (the analogue of the Lorenz curve for making unequivocal judgments) cross at about the 90th percentile, so no general statements are possible. Nevertheless, table 3 indicates a rather general increase in midlevel U.S. female earners from 1974 to 1985 (relative to their median) and a more ambiguous increase from 1985 to 1995.

Comparing men's with women's earnings in charts 3 and 4, we readily see that one major difference is the generally higher growth rates of women's earnings, not only at each point in time, but also virtually throughout the earnings spectrum. The other major difference is in the slopes of the curves: for men, the generally positive slopes indicate an increase in inequality, while for women, the curves have more pronounced regions of downward slopes.

Of course, the labor market is not completely segregated by sex, so it is appropriate to look at the earnings distributions for the entire population of effective labor force participants. These results are shown in the last two sections of table 3 and in chart 5, for those aged 18 to 64. As indicated by the nonmonotonic curves in the chart, as well as the conflicting movements in quintile and decile shares shown in the corresponding section of the table, the underlying Lorenz curves for Canada and the United States cross for both decades' changes. Nevertheless, inequality generally increased from 1974 to 1985 in both countries, more so in Canada.

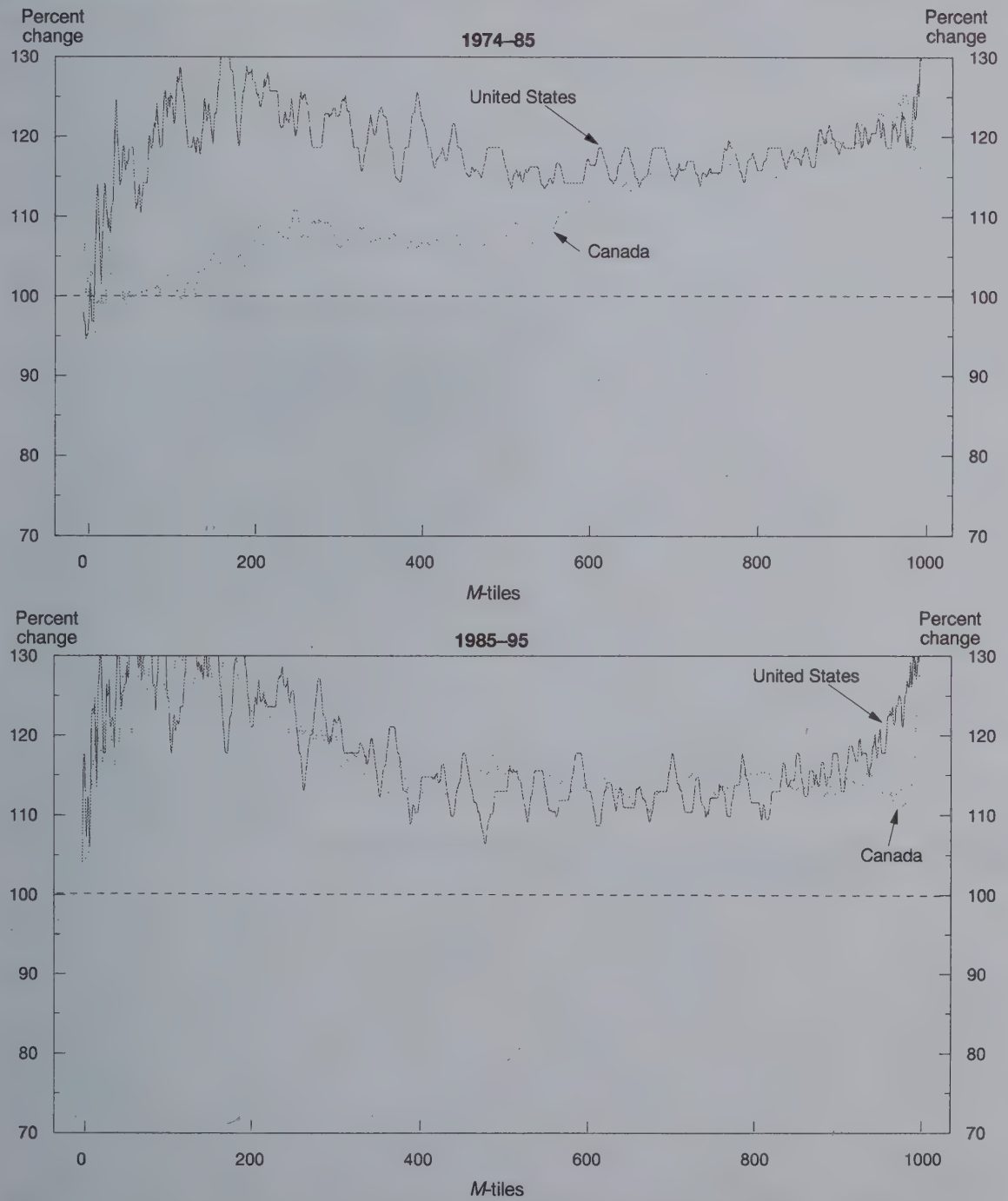
Perhaps surprisingly, polarization appears to have *fallen* in Canada and in the United States over the 1985–95 period, after rising in both countries during 1974–85. Inspection of

Chart 3. **Decennial growth rates in earnings by *M*-tile, Canada and United States, male effective labor force participants aged 18 to 64, 1974–95**



NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is decennial percent change in earnings for each *M*-tile, from first to second earnings distribution (in own-country constant dollars).

Chart 4. Decennial growth rates in earnings by *M*-tile, Canada and United States, female effective labor force participants aged 18 to 64, 1974–95



NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is decennial percent change in earnings for each *M*-tile, from first to second earnings distribution (in own-country constant dollars).

the underlying curves shows that the decline in polarization in Canada was unambiguous, but that the U.S. curves cross at about the 90th percentile. Except for this upper tail, however, the data indicate that the number of "middle-class" earners increased in the United States, even though inequality also increased.

The last block of rows in table 3 broadens the population to consider everyone aged 15 or older who was an effective labor force participant.[13] The data in these rows show ambiguous changes in inequality, because the Lorenz curves cross. But for the United States, as well as Canada, there is an unambiguous *increase* in the number of "middle-class" earners from 1985 to 1995. For the United States, this increase is contrary to virtually all discussions in the literature. The basic reason is that U.S. analyses use only inequality indicators, so they are unable to notice trends in polarization, or the "disappearance of the middle class," as it is generally understood.

As a final look at individual earnings, charts 6 and 7 provide comparisons of *levels* of earnings throughout the distribution *between* Canada and the United States for the population of effective labor force participants aged 18 to 64. Chart 6 uses Statistics Canada's measure of purchasing power parity, which is conceptually the most appropriate. However, the Penn World Table's measures are much more widely used in macroeconomic analysis, as well as in virtually all cross-national studies of inequality.[14] Thus, to give an indication of the sensitivity of the results to the choice of purchasing power parity, and because the two measures bracket the range discussed in the appendix, chart 7 shows the same comparison using the Penn World Table purchasing power parities (in both cases, for the personal final expenditure component of GDP).

Using Statistics Canada's bilateral purchasing power parities, chart 6 shows that in 1974, the first 80 percent of Canadian earners were absolutely better off than their U.S. counterparts. But by 1985, U.S. earners were all better off than their Canadian counterparts, generally by as much as 10 percent to 20 percent, although the extent of this advantage was somewhat reduced in 1995. If, on the other hand, the Penn World Table purchasing power parities are used, as in chart 7, the first 80 percent of earners in the two countries were essentially equal in the effective purchasing power of their earnings in 1985 and in 1995. In the latter year, U.S. earners were at least $5,000 better off than their Canadian counterparts *only* above the 90th percentile and more than $10,000 better off only above the 95th percentile.

Family disposable income

This section examines sets of statistical indicators for family disposable income similar to those examined for individual earnings in the previous section. (See appendix for definitions of *family* and *disposable income*.)

Mean and median incomes. Table 4 shows mean and median levels of disposable family income. Families include both unattached individuals and families with two or more members. Results are given in own-country constant dollars, as well as in Canadian dollars, using the Statistics Canada and Penn World Table purchasing power parities for personal final expenditure.

Average family disposable income was approximately $35,000 in Canada in 1995. The corresponding U.S. figure was either about the same or $4,000 higher, depending on the measure of purchasing power parity used. For median disposable family income, U.S. levels ranged from a few hundred dollars higher to almost $3,000 *lower*, again depending on the choice of purchasing power parity in 1995. Indeed, the *only* cases in which the U.S. median was above the Canadian median disposable income were in 1985 and 1995, for income converted using the Statistics Canada bilateral purchasing power parity. This general result, that up to roughly the halfway mark in the income spectrum Canadian families were better off, is particularly striking, given the prevailing view that Canada has a considerably higher level of taxation than does the United States.

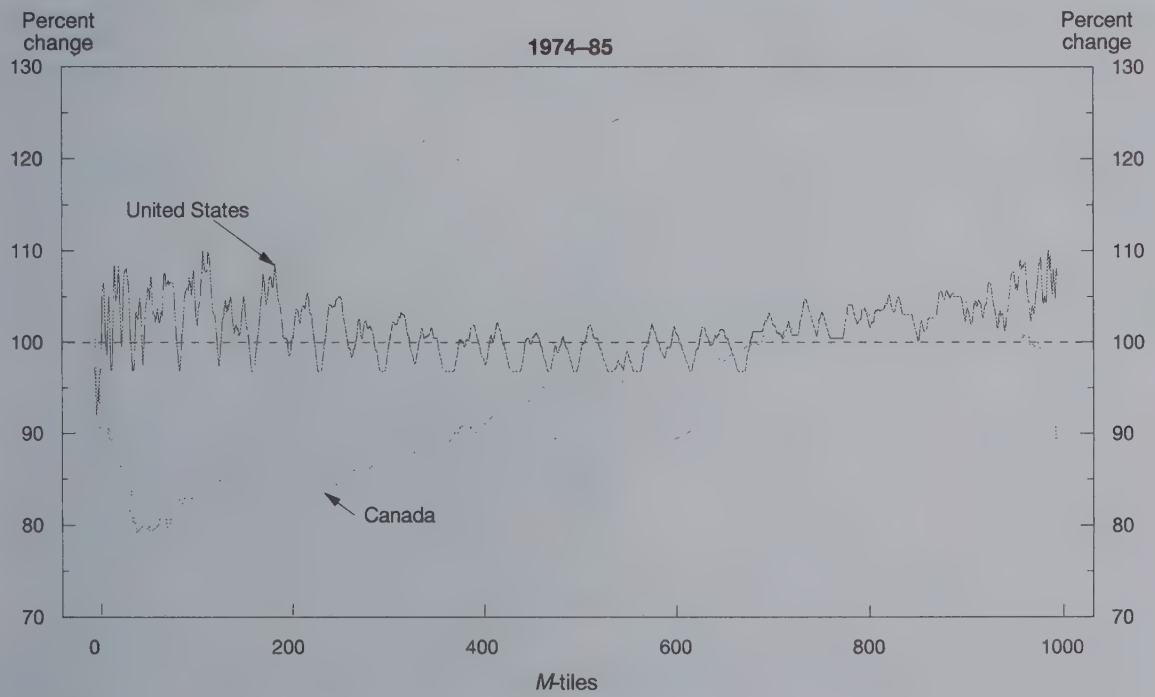
One caveat is that these results omit several major sources of in-kind government benefits, particularly publicly funded health care services. While many U.S. families regularly have to

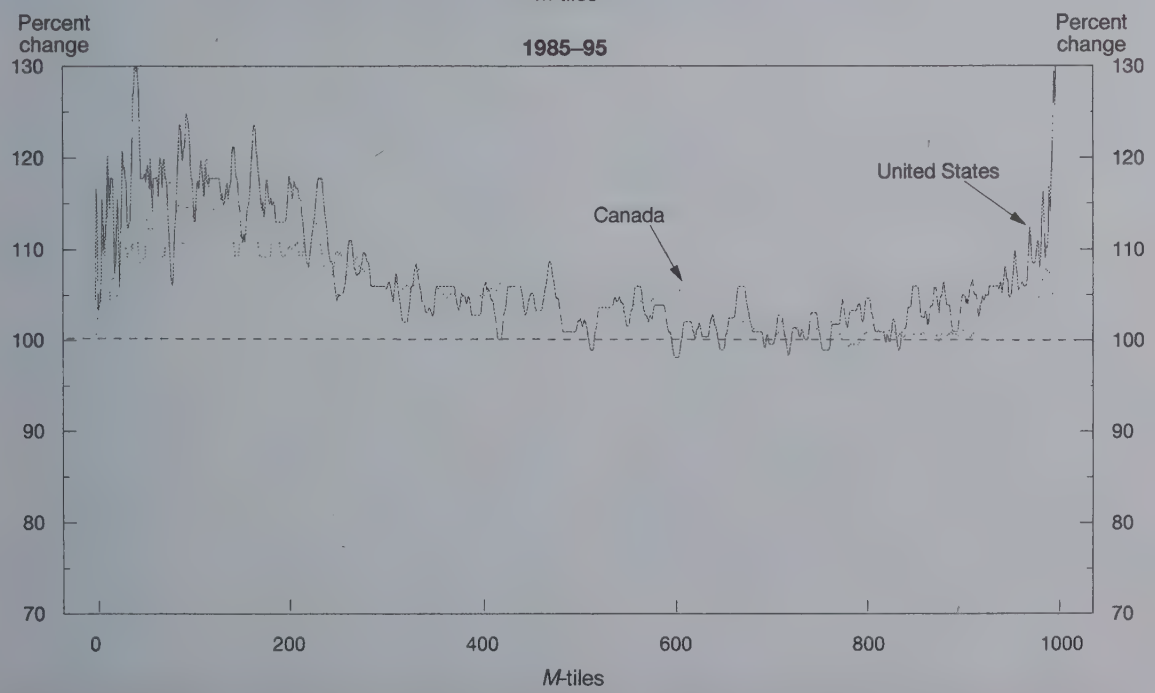
Table 4. Mean and median family disposable income, in thousands of dollars, Canada and United States, 1974, 1985, and 1995

[In percent]

Category	Canada			United States		
	1974	1985	1995	1974	1985	1995
Mean disposable income:						
Own-country dollars	34.8	36.5	35.2	29.6	30.0	31.6
Statistics Canada purchasing power parity	34.8	36.5	35.2	32.6	38.7	39.5
Penn World Table purchasing power parity	34.8	36.5	35.2	30.7	33.7	35.3
Median disposable income:						
Own-country dollars	31.5	32.0	30.2	25.8	24.9	24.6
Statistics Canada purchasing power parity	31.5	32.0	30.2	28.4	32.1	30.8
Penn World Table purchasing power parity	31.5	32.0	30.2	26.8	28.0	27.5

Chart 5. Decennial growth rates in earnings by *M*-tile, Canada and United States, all effective labor force participants aged 18 to 64, 1974–95





NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is decennial percent change in earnings for each *M*-tile, from first to second earnings distribution (in own-country constant dollars).

Table 5. Inequality and polarization indicators for family disposable income, adjusted for size and composition of family, 1974, 1985, and 1995

[In percent]

Quintile or decile and indicator	Canada			United States		
	1974	1985	1995	1974	1985	1995
Indicators of inequality:						
1st quintile	6.1	7.1	7.5	5.6	5.0	4.7
2nd quintile	12.9	12.9	13.1	12.2	11.4	10.9
3rd quintile	18.3	17.9	17.8	17.7	17.4	16.5
4th quintile	24.1	23.8	23.5	24.2	24.5	23.7
5th quintile	38.5	38.3	38.1	40.2	41.7	44.2
9th decile	15.3	15.2	15.1	15.9	16.4	16.1
10th decile	23.2	23.1	23.0	24.4	25.4	28.0
Gini coefficient	.324	.313	.306	.346	.368	.394
Indicators of polarization (percent of median):						
75–125	33.9	33.6	35.0	30.6	27.9	26.8
75–150	46.6	45.9	47.3	42.0	38.5	36.9
60–200	69.3	71.2	72.8	65.3	61.1	60.0
60–225	72.1	74.2	75.9	68.9	65.0	63.9
"Polarization coefficient"	.271	.272	.264	.304	.334	.350
Percent of median:						
Less than 40	10.9	8.6	7.3	12.4	14.3	13.7
Less than 50	17.5	13.6	12.1	18.2	20.5	19.8
Less than 60	23.2	20.7	18.8	24.3	26.5	26.1

spend hundreds of dollars per month for private health insurance, Canadians have no such obligation. According to Smeeding and colleagues,[15] in the early 1980s (the most recent period for which any international comparison was made of the distributional impacts of in-kind public services), Canada's universal public health care system was larger and distributionally more progressive. Thus, had the value of publicly provided health care benefits been included in the analysis, Canadian family income levels would have moved higher relative to those of U.S. families, and inequality would have fallen more in Canada.

Family disposable income inequality and polarization. Table 5 and chart 8 show the same series of indicators of polarization and inequality as was presented for individual earnings, but this time for family disposable income, adjusted for family size and composition by means of an equivalence scale.[16] The chart and the table indicate a most dramatic contrast between Canada and the United States: there was an unequivocal *increase* in income inequality in the United States over both decades,[17] while there was an almost unequivocal *decrease* in inequality in Canada, based not only on the indicators shown in the table, but also on the underlying Lorenz curves.

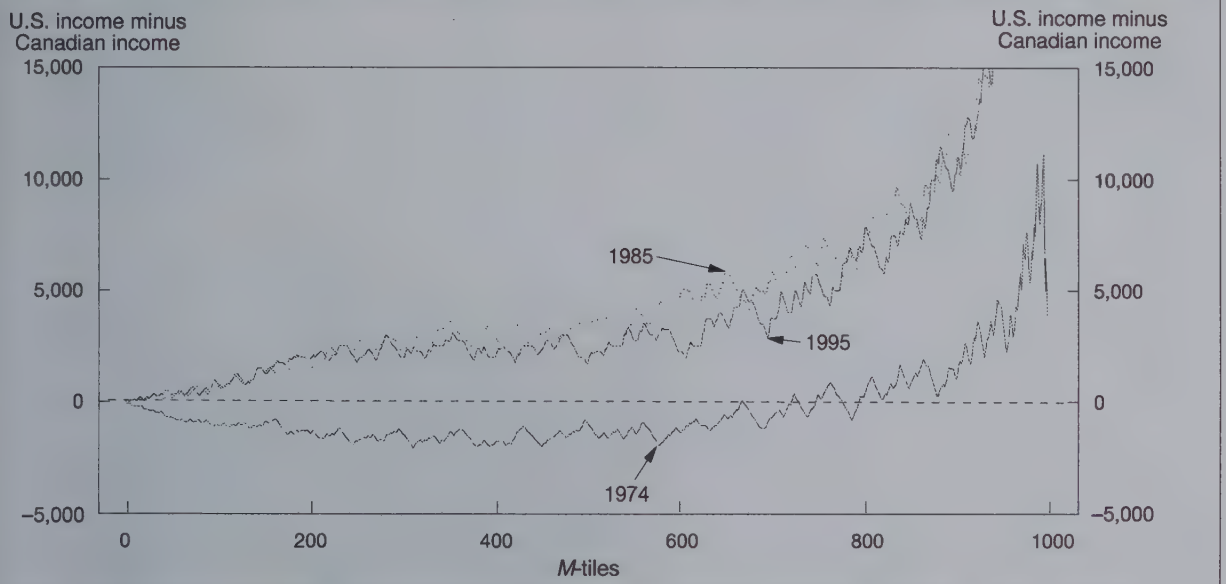
With regard to polarization, the results shown in table 5 must be tempered by the fact that the underlying polarization curves cross for the 1974–85 period in Canada, although they give almost unequivocal results for Canada from 1985 to 1996 and for the United States during both periods. Thus, polarization of family income, adjusted for size and composition, fell in Canada from 1985 to 1995, but rose in both decades in the United States. For example, the proportion of Canadian "middle-class" families (those with incomes between 75 percent and 150 percent of the median) increased from about 46 percent to about 47 percent from 1985 to 1995, while the corresponding proportion in the United States fell from about 38 percent to about 37 percent during the same period. These trends over the two decades combined are shown in the growth-rate curves of chart 8, in which the contrast between the two countries could not be more evident: the Canadian curve is almost everywhere monotonically decreasing, while the curve for the United States is everywhere monotonically increasing.

Chart 9 and the left side of table 6, based on the Penn World Table purchasing power parity, show Canadian families absolutely better off than their U.S. counterparts in terms of size- and composition-adjusted disposable 1995 income up to about the 61st percentile.[18] If, instead, the Statistics Canada bilateral purchasing power parities are used (chart 10 and the right side of table 6), approximately 36 percent of Canadian families have absolutely higher real disposable incomes than their U.S. counterparts.

Finally, the last three rows of table 5 show the proportions of families whose size- and composition-adjusted disposable income was less than 40 percent, 50 percent, and 60 percent, respectively, of the similarly adjusted median family income. The proportions at the 50-percent level correspond to a very widely used measure of "income poverty": those with incomes less than half the (family size-adjusted) median. Thus, the row labeled "less than 40 percent" can be thought of as marking the incidence of "poverty" using four-fifths of the usual "poverty line," while the row labeled "less than 60 percent" gives the incidence using 120 percent of this "poverty line."

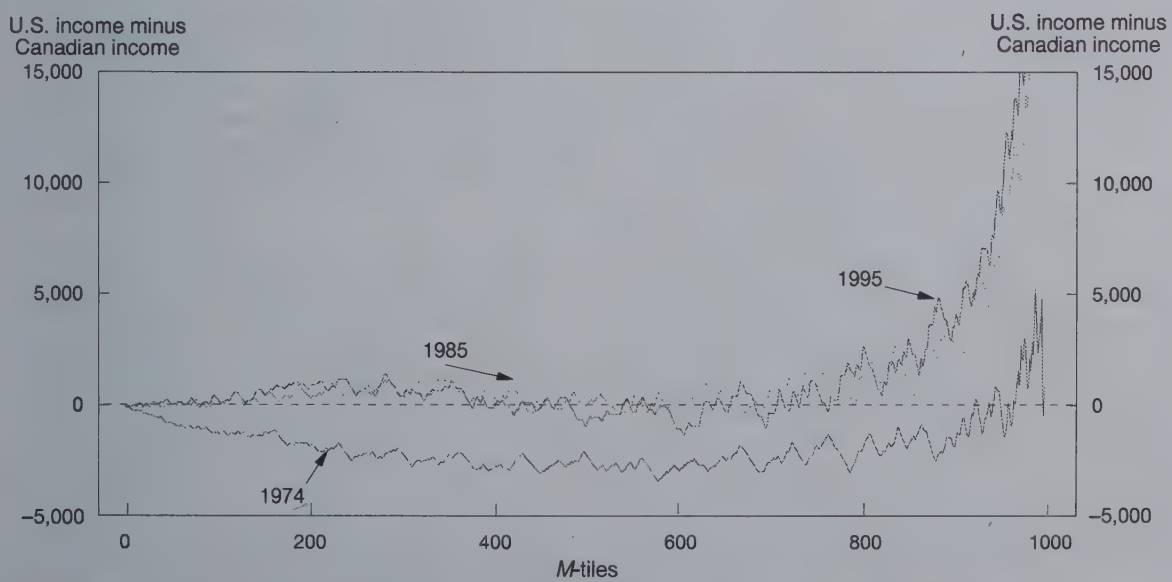
These numbers also show some surprising results. In Canada, the proportions below all three of the lines fell over both decades examined. And while the incidence of "income poverty" rose in the United States over the 1974–85 period, it, too, fell, albeit marginally, between 1985 and 1995.[19] The latter result is particularly striking, especially given the rising rates of officially measured poverty in the United States. However, the data in table 5 are based on a *relative* measure of low income, while the official U.S. poverty statistics are based on an *absolute* poverty line.

Chart 6. **Difference in income, Canada and United States, all effective labor force participants aged 18 to 64, in 1995 Canadian dollars, based on Statistics Canada purchasing power parities, 1974, 1985, and 1995**



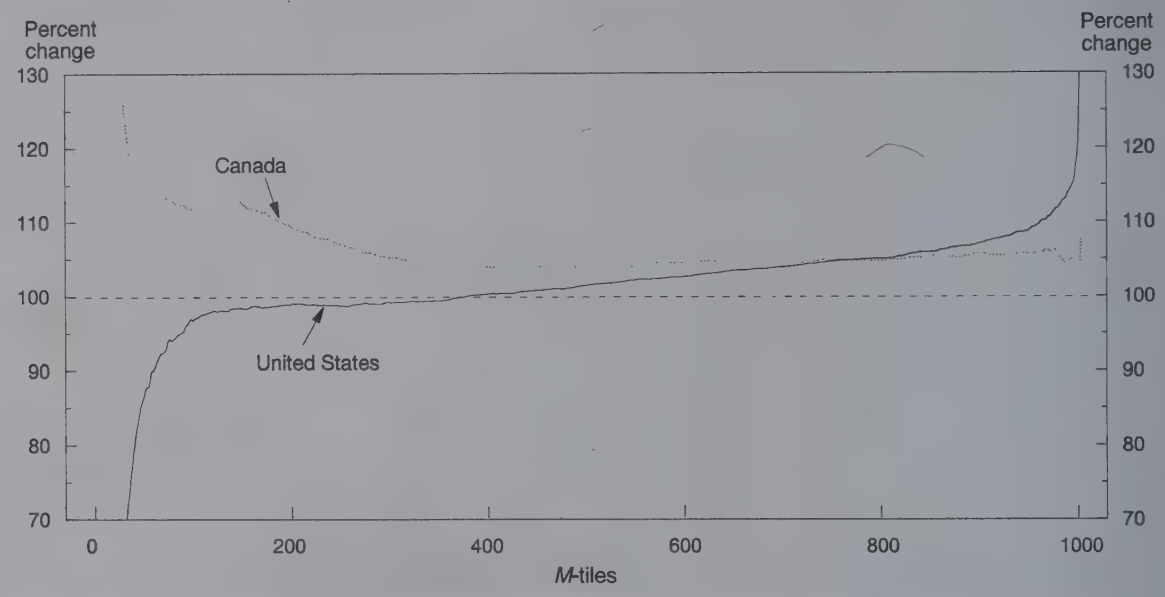
NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is absolute difference in income for each *M*-tile.

Chart 7. **Difference in income, Canada and United States, all effective labor force participants aged18 to 64, in1995 Canadian dollars, based on Penn World Table purchasing power parities, 1974, 1985, and 1995**



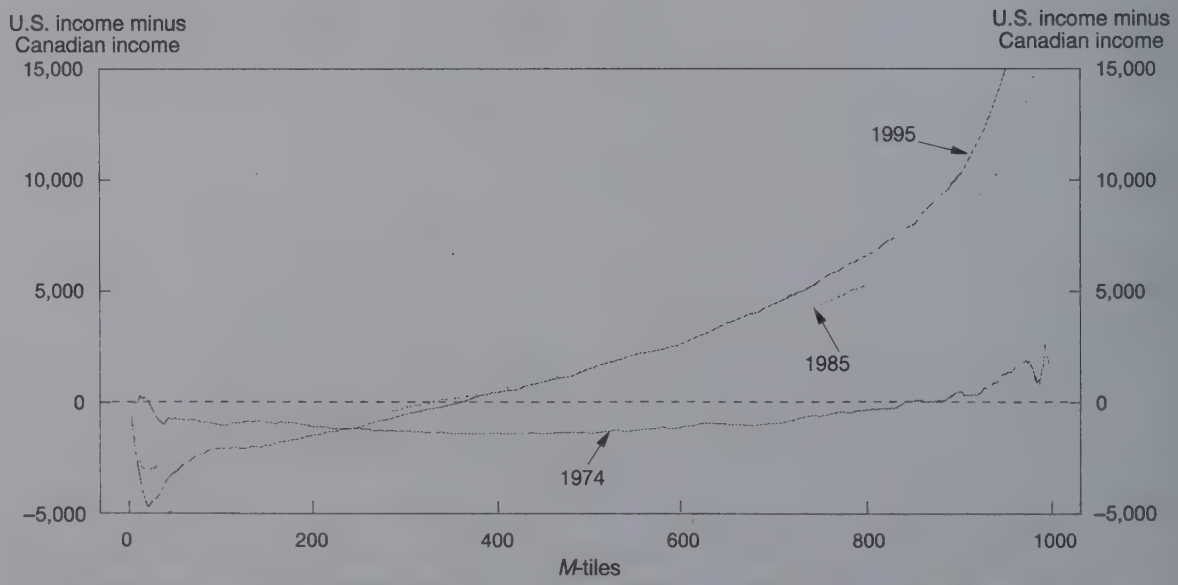
NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is absolute difference in income for each *M*-tile.

Chart 8. **Decennial growth rates in family disposable income, adjusted for family size and composition, by *M*-tile, Canada and United States, 1974–95**



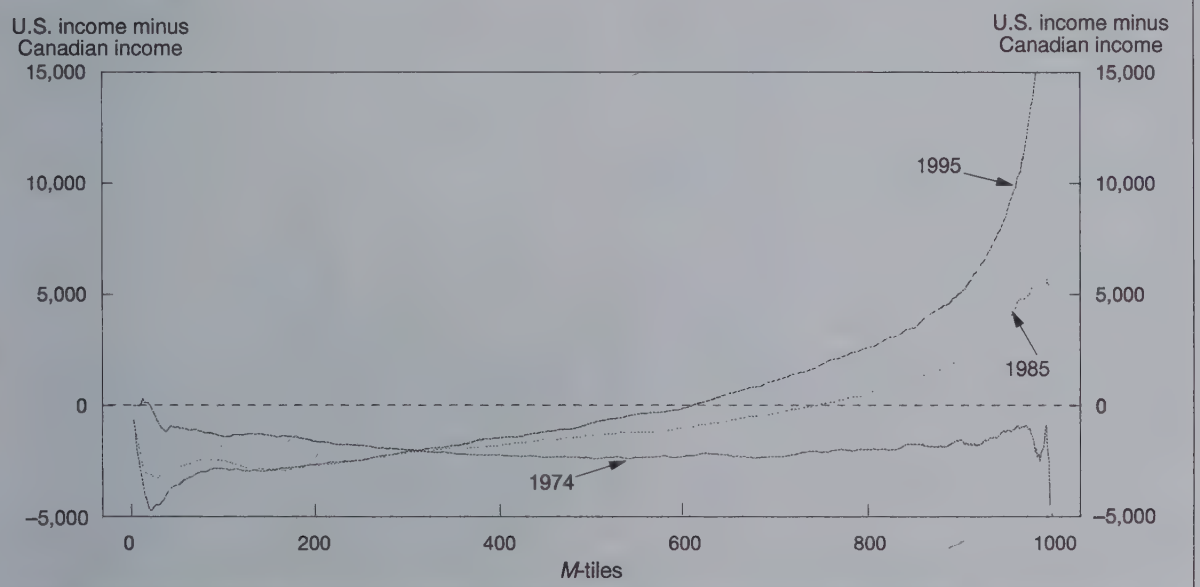
NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles.

Chart 9. **Difference in family disposable income adjusted for size and composition, Canada and United States, in 1995 Canadian dollars, based on Statistics Canada purchasing power parities, 1974, 1985, and 1995**



NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is absolute difference in income for each *M*-tile.

Chart 10. Difference in family disposable income adjusted for size and composition, Canada and United States, in 1995 Canadian dollars, based on Penn World Table purchasing power parities, 1974, 1985, and 1995



NOTE: Individuals are arrayed along horizontal axis in terms of tenths of a percent of population, or *M*-tiles. Vertical axis is absolute difference in income for each *M*-tile.

One factor that does not account for this U.S. trend is an increase in incomes at the bottom of the income spectrum; indeed, table 5 shows the share of the bottom income quintile *falling* by about one-third of a percentage point. Rather, as indicated in table 4, median family disposable income (albeit unadjusted for family size and composition) fell by about $300 (in U.S. dollars) from 1985 to 1995, thereby lowering the half-median low-income cutoff point.

THIS ANALYSIS HAS PRESENTED a detailed description of comparative trends in income inequality in Canada and the United States. In addition, income polarization, which differs conceptually from income inequality, has been examined.

A principal conclusion of the analysis is that the conventional wisdom which holds that the United States is both a richer and a more unequal society than Canada is only partly correct. As regards the labor market, both countries show some similarities. Both experienced substantial increases in the proportions of working-age women who were effective labor force participants (defined simply by the receipt of more than $500 (1995 Canadian dollars) in earnings over the year), as well as increases in the average levels of women's earnings. Also, both countries saw falling median earnings for men over the two decades covered in the analysis. However, while the average earnings of Canadian men fell over the entire period, those of their U.S. counterparts fell from 1974 to 1985, but then rose from 1985 to 1995. This seeming paradox of differential movements of the mean and median over the last decade in the United States is explained by a sharp rise in U.S. male earnings inequality over both decades. In contrast, while male earnings inequality rose from 1974 to 1985 in Canada, it was generally unchanged from 1985 to 1995.

Examining the labor market as a whole—that is, considering male and female effective labor force participants together—yields another striking result: while U.S. earnings *inequality* rose from 1985 to 1995, as per the conventional wisdom, U.S. earnings *polarization* fell over this same period. In other words, *the proportion of "middle-class earners" increased in the United States over the last decade.* (Both earnings inequality and earnings polarization fell slightly in Canada over the period, after both had risen during the previous decade.) The reason this fall in U.S. earnings polarization seems not to have been noticed is that, while U.S. analysts were among the first to detect the "disappearing middle class" in studies published in the mid-1980s,[20] more recent analyses have focused only on measures of inequality.

With respect to family incomes, the most striking result is that a substantial fraction of Canadian families was *absolutely* better off in 1995 than their U.S. counterparts at similar points in the income spectrum. However, one must be cautious here

because this result depends critically on the measures of purchasing power parity used to equate Canadian and U.S. currencies. On the basis of the most widely used measures, those of the Penn World Table,[21] about 60 percent of Canadians (ranked in terms of their family disposable incomes, adjusted for family structure) have *higher* incomes than their similarly defined U.S. counterparts.[22] On the other hand, Statistics Canada's measures of purchasing power parity, which are conceptually more appropriate in this context, still result in more than the first 35 percent of families in the Canadian income distribution being economically better off than families in the corresponding portion of the U.S. income spectrum.

Table 6. Differences in family disposable income,[1] adjusted for size and composition of family, by purchasing power parity, 1974, 1985, and 1995

Decile	Penn World Table			Statistics Canada		
	1974	1985	1995	1974	1985	1995
All deciles	−10.1	−10.9	−8.2	−4.7	2.2	2.7
1st	−4.7	−48.7	−61.8	.3	−41.7	57.3
2nd	−15.5	−26.0	−25.9	−10.4	−15.1	−17.1
3rd	−15.0	−18.0	−17.5	−9.8	−6.0	−7.7
4th	−14.2	−12.0	−10.9	−9.0	1.0	−.4
5th	−12.9	−8.1	−6.2	−7.6	5.4	4.9
6th	−11.3	−5.3	−1.9	−6.0	8.6	9.7
7th	−9.6	−2.6	2.1	−4.2	11.7	14.2
8th	−7.8	.3	6.4	−2.2	15.0	19.0
9th	−5.8	3.6	10.6	.0	18.8	23.7
10th	−3.8	7.3	22.2	2.0	23.1	36.7

[1] U.S. family disposable income minus Canadian family disposable income, as a percent of family disposable income.

Finally, the two decades of Canada- U.S. comparisons suggest that, when viewed through the lenses of the statistical measures highlighted in this article, the two countries' labor markets are becoming more similar. The pattern of changes in the earnings distribution shown in charts 3, 4, and 5 are much more similar over the 1985–95 period than over the 1974–75 period. This covergence in labor market trends contrasts with the more usual impressions left, for example, by comparisons of official unemployment rates or published analyses of comparative inequality trends.

However, as shown in chart 8, no such claim can be made for the convergence of Canadian and U.S. income tax and transfer policy. Canada continues to differ significantly from the United States, particularly in the economic positions of those in the bottom 10 percent and top 5 percent of the income spectrum: the economic position of the poorest in Canada improved, while that of the poorest in the United States deteriorated; and, in contrast, the incomes of the most well off in Canada grew more slowly than the Canadian average, while the most well off in the United States fared much better than average over the past decade. Thus, while the results presented in this article suggest a convergence in patterns of change in earnings distributions in Canada and the United States over the last two decades, there has been no similar convergence in the effects of taxation and transfer policies up to 1995. □

Footnotes

ACKNOWLEDGMENT: We acknowledge with gratitude the essential support and contribution of John Coder of the U.S. Census Bureau, without which this analysis would not have been possible. We remain responsible for any errors or infelicities.

[1] In this and the following section, all results are derived from special tabulations and analyses of detailed microdata from the Survey of Consumer Finance in Canada and the March supplement to the Current Population Survey (CPS) in the United States. (See appendix for details.)

[2] The three years shown have been selected to span two decades, to end with the most recent data available, and to represent similar points in the business cycle. Data for additional years would be desirable, but, as will be seen, would greatly complicate the presentation. Moreover, based on other studies (see, for example, L. Karoly, "Changes in the Distribution of Individual Earnings in the United States: 1967–1986," *Review of Economics and Statistics*, February 1992, pp. 107–15; and two articles in the December 1997 issue of the *Monthly Labor Review*: Jared Berstein and Lawrence Mishel, "Has wage inequality stopped growing?" pp. 3–16; and Robert I. Lerman, "Reassessing trends in U.S. earnings inequality," pp. 17–25), as well as our examinations of detailed annual Canadian data, choosing other points in time would not change the general conclusions of this article.

[3] The Canadian figures are expressed in constant dollars using the Consumer Price Index (CPI); for the United States, the official CPI is used for post-1982 data, while the "experimental" index based on current methodology is used for pre-1982 data. Amounts are rounded to reflect, generally, the maximum number of digits that are statistically significant, given sampling variability. Figures in the text may differ from those in the table due to rounding.

[4] The $500 amount corresponds roughly to 2 weeks working full time at the minimum wage in Canada in 1995. U.S. minimum thresholds were based on the same (Canadian) $500 amount, converted to U.S. dollars using the 1995 Statistics Canada personal final expenditure purchasing power parities and then deflated using the U.S. CPI. (See table A3 in appendix.)

[5] This relationship suggests a need for further exploration to account for the differential trends in these two approaches to measuring the extent of labor force participation.

[6] See, for example, M. L. Blackburn and D. E. Bloom, "The Distribution of Family Income: Measuring and Explaining Changes in the 1980s for Canada and the United States," in D. Card and R. B. Freeman, eds., *Small Differences That Matter: Labor Markets and Income Maintenance in Canada and the United States* (Chicago and London, University of Chicago Press, 1993), pp. 233–65.

[7] See, for instance, R. Morissette, J. Myles, and G. Picot, *What Is Happening to Earnings Inequality in Canada?* Analytical Studies Branch Research Paper Series, no. 60 (Ottawa, Ontario, Statistics Canada, 1994); S. J. Davis, "Cross-Country Patterns of Change in Relative Wages," in O. J. Blanchard and S. Fischer, eds., *NBER Macroeconomics Annual* (Cambridge, MA, MIT Press, 1992), pp. 239–92; L. Karoly, "Anatomy of the U.S. Income Distribution: Two Decades of Change," *Oxford Review of Economic Policy*,

spring 1996, pp. 76–95; C. Juhn, K. M. Murphy, and B. Pierce, "Wage Inequality and the Rise in Returns to Skill," *Journal of Political Economy*, June 1993, pp. 410–42; Bernstein and Mishel, "Has wage inequality stopped growing?" and Lerman, "Reassessing Trends."

[8] See M. C. Wolfson, "Divergent Inequalities—Theory and Empirical Results," *Review of Income and Wealth*, December 1997, pp. 401–21.

[9] On the basis of a study by Kovacevic and Binder, Wolfson has provided detailed estimates of statistical significance for income inequality and polarization measures, taking account of the complex clustered sample design of the underlying Survey of Consumer Finance, the source for the Canadian data used in this article. The underlying U.S. data come from surveys with similarly complex sample designs. Thus, while formal estimates of sampling variability have not been generated for the analysis that is presented, the conclusions are those which would be statistically significant if variances similar to the ones found in the earlier study had applied. (See Wolfson, "Divergent Inequalities"; and M. S. Kovacevic and D. A. Binder, "Variance Estimation for Measures of Income Inequality and Polarization—the Estimating Equations Approach," *Journal of Official Statistics*, March 1997, pp. 41–58.

[10] These charts differ somewhat from the usual presentations, for example, by Karoly and by Juhn and colleagues. (See footnote 7.) First, the bottom and top 5 percent are not trimmed off. The top 5 percent of the population is usually omitted from analyses of U.S. earnings, due to the top coding of incomes on public-use data. This article, however, draws on internal U.S. Census Bureau microdata files, which are top coded at much higher levels of income. For example, based on the top-coding algorithm used by the Census Bureau in 1995, no more than one one-hundredth of the records in any percentile were top coded, except for the first and last percentiles, for which the percentage rises to no more than four one-hundredths. Second, the article uses tenths of percents ("*M*-tiles"), rather than percentiles, so there is much more jaggedness in the curves. While this feature is partly due to sampling, it is far more importantly related to the propensities of survey respondents to round their incomes to the nearest $500 or $1,000, an important source of nonsampling error. (See G. Rowe and S. Gribble, "Income Statistics from Survey Data: Effects of Respondent Rounding," in *Proceedings of the American Statistical Association, Section on Business and Economic Statistics* (American Statistical Association, Alexandria, VA, 1994), pp. 77–82.)

[11] Unfortunately, there is no simple relationship between the shape of the percentile growth-rate curve and changes in polarization. For example, a monotonically increasing curve is associated with both an increase in inequality and an increase in polarization, but a bimodal growth-rate curve can also indicate increasing polarization, even though a bimodal pattern of growth rates throughout the income spectrum would imply crossing Lorenz curves and hence an ambiguous change in inequality.

[12] Also, the chart highlights the risks of drawing potentially misleading conclusions about trends from a single indicator such as the widely used ratio of the 90th percentile to the 10th percentile.

[13] Table A1 in the appendix shows the sizes of various age and population groups in Canada and the United States, while table A2 compares the age structures of the two populations.

[14] See, for example, P. Gottschalk and T. M. Smeeding, *Empirical Evidence on Income Inequality in Industrialized Countries*, working paper no. 157 (Syracuse, NY, Syracuse University, Maxwell School of Citizenship and Public Affairs, 1997).

[15] T. M. Smeeding, P. Saunders, J. Coder, S. Jenkins, J. Fritzell, A. J. M. Hagenaars, R. Hauser, and M. Wolfson, "Poverty, Inequality, and Family Living Standards Impacts across Seven Nations: The Effects of Noncash Subsidies for Health, Education and Housing," *Review of Income and Wealth*, September 1993, pp. 229–56.

[16] The scale uses the equivalencies embodied in Statistics Canada's Low Income Measure: 40 percent for second and subsequent adults and for first children in single-parent families, and 30 percent for children in all other circumstances. This equivalence scale is very close to one using the square root of family size—for example, as used in Gottschalk and Smeeding, *Empirical Evidence on Income Inequality*, and in A. B. Atkinson, B. L. Rainwater, and T. M. Smeeding, *Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study (LIS)*, Social Policy Studies, no. 18 (Paris, Organization for Economic Cooperation and Development, 1995).

[17] See, for example, D. H. Weinberg, "Are the Rich Getting Richer and the Poor Getting Poorer?" *Current Population Reports*, series P60, no. 191 (Bureau of the Census, June 1996); also on World Wide Web site http://www.census.gov/....

[18] This result is in accord with Gottschalk and Smeeding, *Empirical Evidence on Income Inequality*, but contrary to these authors' "Cross-national Comparisons of Earnings and Income Inequality, *Journal of Economic Literature*, June 1997, pp. 633–87. Smeeding indicates that the former work is the one to be used (personal communication).

[19] A similar result was obtained in a recent study. (See "Income Distribution and Poverty in Selected Countries," DEELSA/ELSA/WP1(97)1/ANN1 (Paris, Organization for Economic Cooperation and Development, Working Party on Social Policy, Oct. 23, 1997), annex 1, table 5.1.

[20] See L. Thurow, "The Disappearance of the Middle Class," *New York Times*, Feb. 5, 1984, sect. 3, p. 2; and M. Blackburn and D. E. Bloom, "What Is Happening to the Middle Class?" *American Demographics*, January 1985, pp. 18–25.

[21] R. Summers and A. Heston, "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950–1988," *Quarterly Journal of Economics*, May 1991, pp. 327–68.

[22] Similar results are presented in Gottschalk and Smeeding, *Empirical Evidence on Income Inequality*.

APPENDIX: Data and methodology

Data sources and definitions. All the detailed distributional data on earnings and family disposable income in this article were generated using detailed microdata from Statistics Canada's Survey of Consumer Finance and the U.S. Census Bureau's March Supplement to the Current Population Survey. In both cases, data from internal master files were used. One result is that top coding is much less stringent than on the public-use samples employed in most published analyses. (See footnote 10 in text.)

Family. The term "family" used for both countries in this study refers to persons residing together and related by blood, marriage, or adoption. In Canada, this unit is typically referred to as the economic family; the corresponding U.S. label is the census family or just the family. Note that a family, as defined in the text, includes families of only one person. In contrast, both Canada and the U.S. official family statistics refer to groups of two or more persons and exclude unattached individuals.

Earnings. Earnings are defined as wages and salaries from all jobs before deductions, plus self-employment income from farm and nonfarm sources. Earnings (particularly self-employment income) may be negative. In U.S. Census Bureau reports, earnings are referred to as total money earnings. Net income from roomers and boarders is included in earnings in Canada, whereas in the United States, it is included in investment income (although, at less than six hundredths of a percent of total income in aggregate, the difference is minor). Given the aforesaid definition of earnings, in order to be considered an effective labor force participant, a self-employed person with

negative self-employment income would have to have sufficient wages to cover the loss in self-employment and still meet the $500 criterion set forth in the text.

Disposable income. For the United States, disposable income is defined as total money income (according to the official definition used in U.S. Census Bureau reports), plus energy assistance grants in 1995, plus food stamps in 1985 and 1995, plus the earned income tax credit in 1985 and 1995, less State and local taxes, less Social Security deductions (FICA). For Canada, disposable income is defined as total money income (as defined in the Survey of Consumer Finances), less Federal and Provincial income taxes. Because the Survey of Consumer Finances does not include payroll taxes in its published after-tax figures, we have modeled payroll taxes (Canada Pension Plan or Quebec Pension Plan contributions, and unemployment insurance contributions) and deducted them in calculating disposable income.

Distributions. Distributions of disposable family income, adjusted for family structure, were constructed as disposable income for each family, divided by the family's equivalence scale, using one observation per family.

Table A1. Age groups, as a percentage of all individuals aged 15 years and older, Canada and United States, 1974, 1985, and 1995

[In percent]

Age group	Canada			United States		
	1974	1985	1995	1974	1985	1995
15 and older	100.0	100.0	100.0	100.0	100.0	100.0
15 and older earning more than $0	65.6	69.8	68.3	66.2	67.3	68.2
15 and older and effective labor force participant	64.6	68.1	66.8	64.2	64.9	66.1
18–64	80.4	81.8	80.5	78.4	79.2	78.9
18–64 and earning more than $0	60.2	65.5	64.8	59.7	62.7	63.9
18–64 and effective labor force participant	59.7	64.6	63.8	58.7	61.3	62.6

Table A2. Age structure, Canada and United States, age 15 and older, 1974, 1985, and 1995

[In percent]

Age group	Canada			United States		
	1974	1985	1995	1974	1985	1995
15–24	25.5	24.9	21.8	20.7	16.9	17.7
25–44	36.8	33.9	41.5	40.3	41.7	41.0
45–64	26.4	27.7	24.2	24.2	26.8	25.7
65 and older	11.3	13.6	12.4	14.8	14.5	15.5

Supplementary demographic data. In support of the analysis in the text, table A1 shows the proportions of individuals in the various populations that have been used for the examination of individual earnings. Table A2 indicates the comparative age structure of the two countries' populations.

Purchasing power parities. The focus of much of the analysis in the text requires that incomes be expressed in a common currency. The appropriate method is to use purchasing power parities, the intercountry analogue of intertemporal price indexes. Several such measures are available for Canada-U.S. comparisons, but unfortunately, they give significantly varying results.

Chart A1 shows both a number of purchasing power parities and the Canadian-U.S. exchange rate over the past 25 years. The exchange rate has been more volatile than the parities and has diverged significantly from all of them, suggesting that the Canadian dollar was "overvalued" in 1974, but "undervalued" in 1985 and 1995, relative to general price levels in each country.

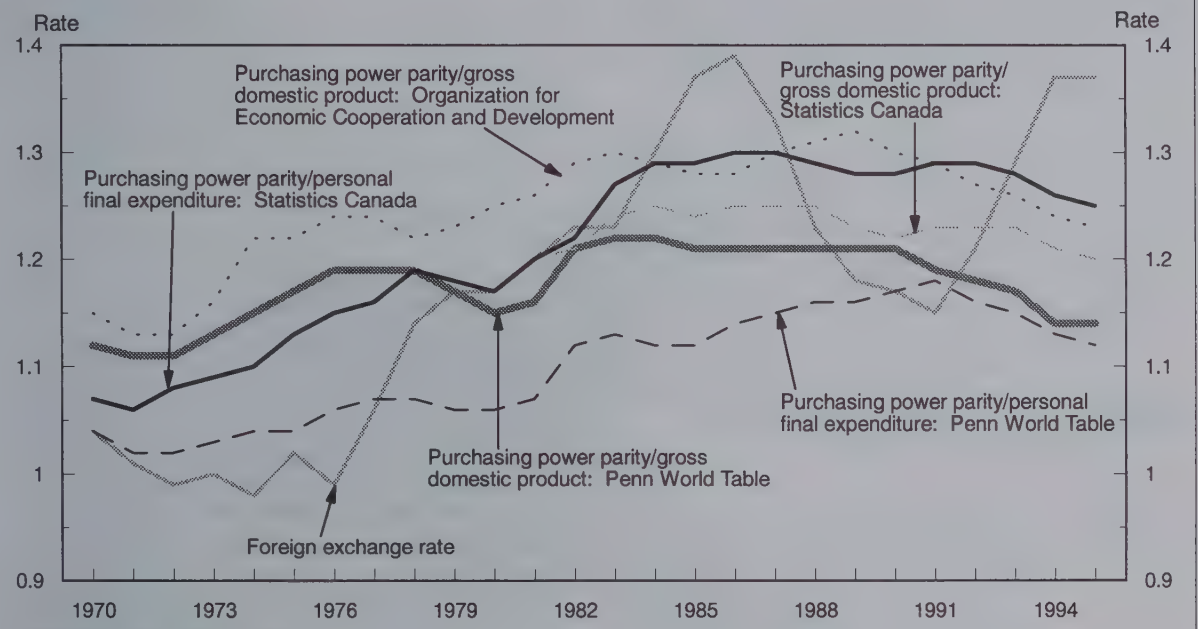
Differences between exchange rates and purchasing power parities can arise because the factors that are most important for major players in international money markets (the determinants of exchange rates) involve more than differences in comparative prices faced by individuals and families between countries. For example, relative interest rates, world commodity prices, and perceptions of political risk often have effects on countries' exchange rates that are far larger than their effects on the prices for consumption goods typically faced by households. Moreover, many of the domestic prices relevant to households involve commodities that are not traded internationally.

Among available measures of purchasing power parity, the most general and widely used are those from the Penn World Table,[1] because the underlying commodity structure is representative of the broadest range of countries. Another such multilateral measure is that of the Organization for Economic Cooperation and Development (OECD),[2] covering 24 countries. Yet a third is a set of bilateral Canada-U.S. purchasing power parities developed by Statistics Canada.[3] For multilateral comparisons, the OECD or Penn World Table measures are more appropriate, depending on the range of countries to be compared. However, for bilateral Canada-U.S. comparisons, the Statistics Canada bilateral purchasing power parities are conceptually more appropriate, because they are based on a North American commodity basket only and, therefore, one that does not give any weight to consumption patterns in other "irrelevant" countries.

The most commonly used purchasing power parities are for a country's overall economy—that is, gross domestic product (GDP). For purposes of individual and family income analysis, on the other hand, it is more appropriate to focus on the relative international prices of the commodities purchased directly by individuals and households. The closest National Accounts concept for which purchasing power parities have been developed is private final expenditure, which accounts for about two-thirds of total GDP. The other third is investment and government purchases of goods and services.

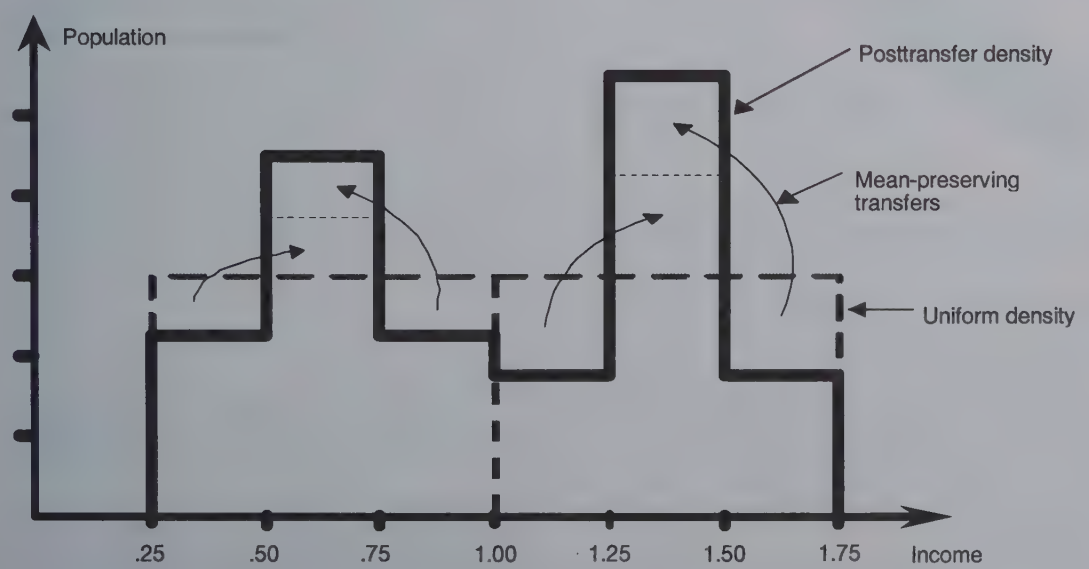
There is no clear pattern to the purchasing power parities shown in Chart A1 and Table A3. For example, the Statistics Canada purchasing power parity for private final expenditure is lower than the overall Statistics Canada purchasing power parity for GDP, while the Penn World Table purchasing power parity for private final expenditure is higher than the Penn World Table purchasing power parity

Chart A1. **Foreign exchange rate[1] and purchasing power parities for overall gross domestic product and for private final expenditure, 1970–95**



[1] Canadian dollars per U.S. dollar.

Chart A2. **Two hypothetical income distributions illustrating difference between inequality and polarization**



for GDP. There is more than a 10-percent difference in 1995 between the Penn World Table and Statistics Canada purchasing power parities for personal final expenditure.

The last two rows in Table A3 give the Consumer Price Indexes (CPI's) that have been used to convert within-country amounts to constant 1995 dollars. Prices more than doubled from 1974 to 1985 and then increased by a further third from 1985 to 1995. Inflation was higher in Canada in the first period, but somewhat slower over the more recent decade.

Measuring inequality and polarization. There is a well-established literature on the measurement of income inequality. Typical indicators are the income shares of various quartile groups and summary measures such as the Gini coefficient. The formal "gold standard" for measuring inequality is the Lorenz curve. However, as demonstrated by Wolfson,[4] but known much earlier,[5] income *polarization* is a different concept from income *inequality*. Polarization measures are intended to capture the notion of a "disappearing middle class."

The motivation for this distinction is given in chart A2, which shows two hypothetical income distribution density functions, one rectangular and the other bimodal. Perhaps surprisingly, the bimodal density, according to any widely accepted measure of inequality, turns out to be a more equal distribution than does the rectangular density.[6] But clearly, this bimodal density is also a more polarized distribution.

Chart A3. Summary measure of polarization based on Lorenz curves

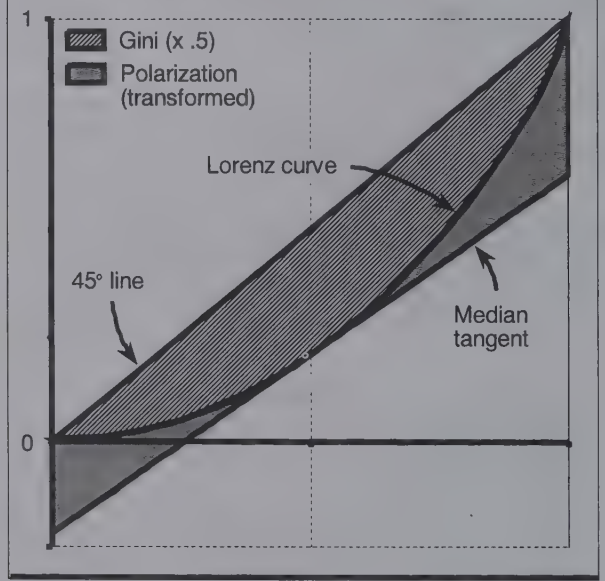


Table A3. Exchange rate, purchasing power parity ratios,[1] and Consumer Price Indexes, Canada and United States, 1974, 1985, and 1995

Age group	1974	1985	1995
Exchange rate	1.02	.73	.73
Organization for Economic Cooperation and Development, purchasing power parity, applied to gross domestic product	.82	.78	.81
Penn World Table, purchasing power parity, applied to gross domestic product	.87	.83	.88
Penn World Table, purchasing power parity, applied to personal final expenditure	.96	.89	.89
Statistics Canada, purchasing power parity, applied to gross domestic product	[2].91	.81	.83
Statistics Canada, purchasing power parity, applied to personal final expenditure	[2].91	.78	.80
CPI:			
Canada	.30	.72	1.00
United States	.34	.71	1.00

[1] U.S. dollars divided by Canadian dollars.

[2] Extrapolated back from earliest published date (1982), based on country-specific CPI's.

The analysis in the text uses two kinds of polarization indicators. The first kind is a straightforward statistic, giving the proportions of earners (or families) in various income ranges around the median—for example, the proportion of all earners with earnings between 75 percent of the median and 125 percent of the median. This specific measure was used early in the emerging literature on the disappearing middle class by Thurow, while a similar 60-percent to 225-percent range was used by Blackburn and Bloom.[7]

The other kind of indicator is a rigorous summary measure of polarization—in fact, the Gini coefficient counterpart of polarization.[8] This measure captures both "spread-out-ness from the middle" and bimodality. Chart A3 shows graphically how it is calculated as the area between the conventional Lorenz curve and the tangent to the Lorenz curve at the median (that is, the 50th percentile). □

Footnotes to the appendix

[1] R. Summers and A. Heston, "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950–1988," *Quarterly Journal of Economics*, May 1991, pp. 327–68; and Mark 5.6 on the NBER World Wide Web site, http://nber.harvard.edu/pwt56.html.

[2] *Purchasing Power Parities and Real Expenditures: EKS Results*, vol. 1. (Paris, Organization for Economic Cooperation and Development, Statistics Directorate, 1995).

[3] *International Price and Quantity Comparisons: Purchasing Power Parities and Real Expenditures, Canada and the United States*, technical series no. 25 (Ottawa, Statistics Canada, National Accounts and Environment Division, 1993).

[4] See M. C. Wolfson, "When Inequalities Diverge," *American Economic Review*, May 1994, pp. 353–58; and "Divergent Inequalities—Theory and Empirical Results," *Review of Income and Wealth*, December 1997, pp. 401–21.

[5] S-Ch. Kolm, "The Optimal Production of Social Justice,"paper presented at the International Economic Association Conference on Public Economics, Biarritz, France, 1966; also published in *Économie publique* (Paris, CNRS, 1968), pp. 109–77, and *Public Economics* (London, Macmillan, 1969), pp. 145–200. See also R. Love and M. C. Wolfson, *Income Inequality: Statistical Methodology and Canadian Illustrations*, Catalogue 13-559

Occasional (Ottawa, Statistics Canada, March 1976).

[6] The reason is that the bimodal density can be derived from the rectangular density via a sequence of mean-preserving progressive transfers, and each of these transfers necessarily moves the Lorenz curve closer to the 45-degree line.

[7] See L. Thurow, "The Disappearance of the Middle Class," *New York Times*, Feb. 5, 1984, sect. 3, p. 2; and M. Blackburn and D. E. Bloom, "What Is Happening to the Middle Class?" *American Demographics*, January 1985, pp. 18–25.

[8] See M. C. Wolfson and B. B. Murphy, "Kinder and Gentler: A Comparative Analysis of Incomes of the Elderly in Canada and the U.S.," in T. R. Marmor, T. M. Smeeding, and V. L. Greene, eds., *Economic Security and Intergenerational Justice: A Look at North America* (Washington, DC, Urban Institute Press, 1994), pp. 227–61; and M. C. Wolfson, "Divergent Inequalities—Theory and Empirical Results," *Review of Income and Wealth*, December 1997, pp. 401–21.

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Using survey data to assess bias in the Consumer Price Index

Comparisons of self-reports with actual changes in families' financial status indicate that the CPI may measure such changes reliably

Alan B. Krueger
and
Aaron Siskind

In a clever and influential paper, William Nordhaus provides an estimate of the extent of bias in the Consumer Price Index (CPI) by comparing the net proportion of families that report an improvement in their financial situation with changes in real median income.[1] Specifically, he bases his analysis on time-series data collected by the University of Michigan's Institute for Social Research (ISR) in its Survey of Consumers. Among other things, this survey, which is used to measure consumer confidence, asks respondents whether their families' financial situation improved or worsened in the past year.

Nordhaus reasons that if real median household income rises in a particular year, more respondents should report becoming better off than worse off, and if real median income falls, more respondents should report becoming worse off than better off. In this view, constant real median income should be associated with an equal number of families reporting financial gains and losses. Nordhaus estimates the implied bias in the CPI by determining the growth rate of real median income that is associated with an equal number of families reporting an improvement, compared with a decline, in their financial situation. His point estimate suggests that the CPI is biased upwards by 1.5 percentage points. This is a novel approach to deriving an independent estimate of any bias in the CPI.

Nordhaus' method makes sense if the entire distribution of income moves with the median. But if the distribution of income changes in ways that are not related to the median, his approach could understate or overstate the bias in the CPI.

The following hypothetical example illustrates this point. Suppose the income distribution consists of five families that are ranked in order of their income in the base year. Suppose further that the family with the lowest income experiences a decline in (correctly measured) real income, the next two families experience no change in real income, and the top two families experience real-income growth. In this scenario—which might roughly mirror the U.S. income distribution over the last two decades—the median income is unchanged, so Nordhaus' reliance on the median would imply an equal number of families with real income gains and losses.[2]

However, 40 percent of families would have experienced a gain in real income and 20 percent would have experienced a decline, so, on net, 20 percent more families would report that their financial situation improved than worsened if the ISR survey question elicited accurate responses. In that case, a constant median real income would be correctly associated with an increase in the net proportion of families that reported being better off, not equal proportions better off and worse off. Thus, in this example, using the median family income to predict the net fraction of financial gainers would lead one to conclude that the CPI was biased upward, even if it in fact is unbiased. More generally, when the shape of the income distribution changes, the change in the median is not a sufficient statistic for determining the net number of

Alan B. Krueger is Bendheim Professor of Economics and Public Affairs in the Department of Economics and Woodrow Wilson School, Princeton University, Princeton, New Jersey. Aaron Siskind is a graduate student in the Department of Economics, Princeton University.

families that experienced income gains or losses.

Another potential problem concerns life-cycle income effects. The Census Bureau's estimate of household income is from the March Current Population Survey (CPS), which has a rotation-group design that should reflect the experience of repeated cross sections of households. In contrast, the ISR question asks respondents to reflect on their experience in the past year, so it is inherently longitudinal. If income rises over the life cycle for most families, the Census median income figure will understate the longitudinal growth in income, which would lead Nordhaus' method to overstate the bias in the CPI.

In this article, Nordhaus' analysis is extended. Most importantly, the Panel Study of Income Dynamics (PSID) data set is used to calculate the actual fraction of families that experienced measured increases and decreases in real income each year from 1968 to 1991. With longitudinal data, a variable can be calculated that, in principle, is more closely related to the ISR survey data on self-reported changes in financial well-being. If income is deflated properly, a regression of the net fraction of families that self-reported becoming financially better off on the actual fraction, as estimated from the PSID, should yield an intercept of zero and a slope of unity. Moreover, alternative assumptions about the possible bias in the CPI can be used to deflate real income in the microdata and then tested to see which assumption yields results that are closest to the "no bias" benchmark of a zero intercept and unit slope.

Accordingly, the next section of the article replicates Nordhaus' findings with median-income data. Also explored are the sensitivity of his results to using different percentiles of the cross-sectional income distribution, to using median income derived from the PSID, and to using an alternative measure of the CPI. This analysis finds that Nordhaus' results can be replicated and are generally robust. The section that follows presents new estimates based on the actual fraction of families whose income increased or decreased. Perhaps surprisingly, these results indicate that using the CPI to deflate family income may in fact provide an unbiased estimate of the fraction of families that report a net improvement in their financial situation. The article concludes with a discussion of the implications of the findings.

Replication of Nordhaus' analysis

Each month, the ISR's Survey of Consumers contains the following question:

> We are interested in how people are getting along financially these days. Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?
>
> Better Now Same Worse Don't Know

In August 1997, for example, 45 percent of respondents reported that they were financially better off now, 31 percent reported that they were the same, and 24 percent reported they were worse off.

Following Nordhaus, the analysis presented here subtracts the percentage of families that report a worsening in their financial situation from the percentage that report an improvement and creates an annual series by averaging each 12 calendar months of data.[3] The resulting figures, which are reported in table A1 in the appendix, are henceforth referred to as *the net percentage of families whose financial situation improved.* Nordhaus regresses the net percentage of families whose financial situation improved on the percent change in median real household income, using the CPI-U to deflate income. His regression model is

$$Y = a + bX, \quad (1)$$

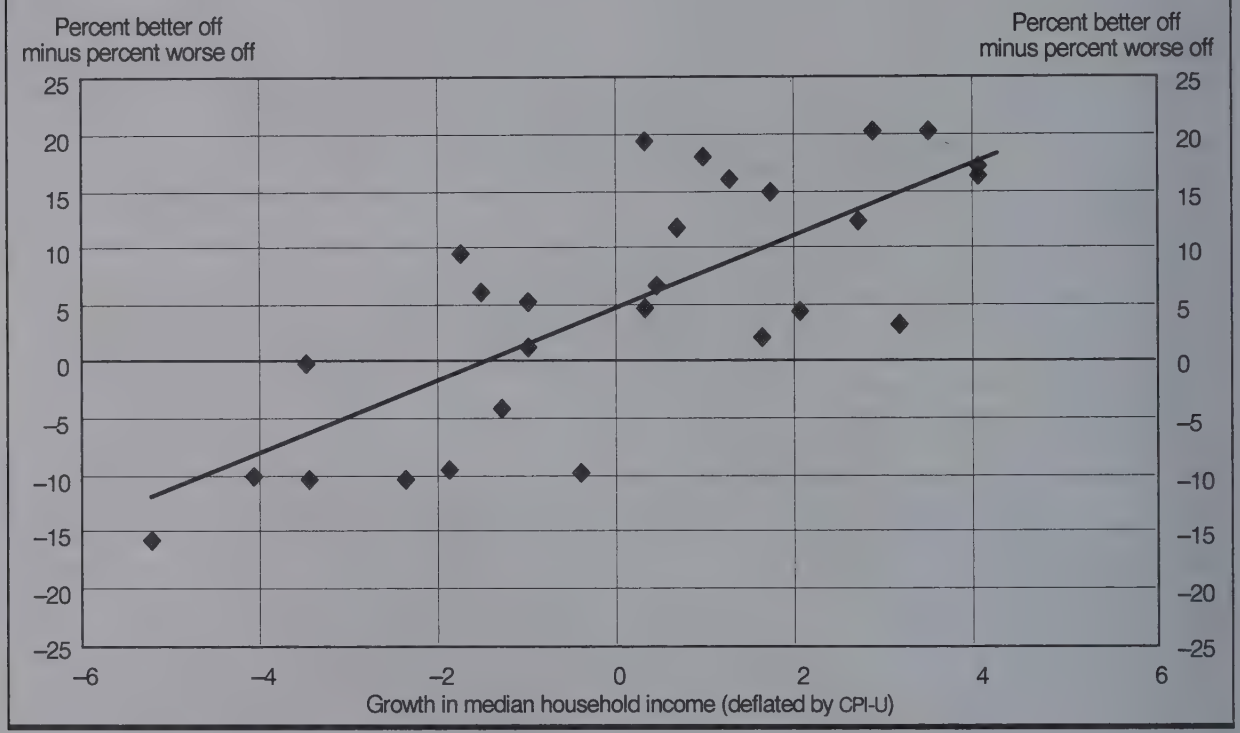
where Y is the percentage of families that report an improvement in their financial situation, minus the percentage that report a worsening, and X is the percent change in median household income from the CPS, deflated by the CPI-U. The ratio $-a/b$ is an estimate of the percent change in measured real income that is associated with an equal number of families reporting an improvement and a worsening in their financial well-being, which Nordhaus interprets as an

Table 1. Regression of percentage of families reporting that they were better off minus percentage reporting that they were worse off on percent change in median real income, 1968–91 or 1968–94

Statistical quantity	Explanatory variable[1]			
	CPS median household income deflated by—			Median family income from Panel Study of Income Dynamics, deflated by CPI-U-X1
	CPI-U[2]	CPI-U-X1[3]	CPI-U-X1	
Sample period	1968–94	1968–94	1968–91	1968–91
Intercept (*a*)	4.87	3.87	3.60	4.25
	(1.35)	(1.54)	(1.72)	(2.03)
Slope (*b*)	3.36	3.31	3.30	2.20
	(.54)	(.66)	(.70)	(.72)
a/*b*	1.45	1.17	1.09	1.93
	(.47)	(.56)	(.52)	(1.20)
R-squared	.61	.50	.51	.30
Average of dependent variable	5.20	5.20	5.30	5.30
Average of independent variable	.10	.40	.52	.48

[1] Standard errors are in parentheses.
[2] CPI-U = Consumer Price Index for All Urban Consumers.
[3] CPI-U-X1 = Experimental Consumer Price Index for All Urban Consumers.
SOURCE: Data from Survey of Consumers, Institute for Social Research, University of Michigan.

Chart 1. Scatter diagram of Nordhaus' data



estimate of the bias in the CPI.

The column headed "CPI-U" in table 1 replicates Nordhaus' estimates: the implied bias in the CPI is about 1.5 percentage points, according to his specifications. A scatter diagram of the relationship between the two variables, Y and X, is provided in chart 1, along with the fitted ordinary least squares regression line. The X-intercept of the regression line corresponds to $-a/b$. Standard errors were calculated for a/b using the "delta method."

The Bureau of Labor Statistics has introduced several changes into the official CPI in past years. Although the Bureau does not retroactively change the official CPI, it has produced the CPI-U-X1, which adjusts the historical data for subsequent changes in the measurement of housing prices and therefore more closely reflects current procedures used in calculating the CPI-U. Nordhaus deflates income growth by the CPI-U, which is appropriate for estimating the bias in the historical data. Deflating by the CPI-U-X1 probably provides a better guide for the bias in the present-day CPI, however. Consequently, the first of the two columns headed "CPI-U-X1" in table 1 presents a reestimate of the same model as in the previous column, but now using the CPI-U-X1 to deflate median income growth. These results yield a smaller, but still substantial, 1.2-percentage-point-per-year bias in the CPI.

As of this writing, family income data from the PSID are available on a consistent basis only from 1967 to 1991, so the analysis that follows is restricted to that period. To examine whether the narrower period substantively affects the estimates, the second of the two columns headed "CPI-U-X1" reports a reestimate of equation (1) with CPS income data for 1968–91. This minor change hardly affects the results: the implied annual bias in the CPI is about 1.1 percentage point.

For comparison, the last column of table 1 shows results in which median real family income each year, calculated from the PSID, is the X variable (again using the CPI-U-X1 to deflate nominal income). The CPS and PSID median-income series are displayed in chart 2. The two median real-income measures have a correlation of 0.82 in levels, and the annual percent changes in these two measures have a correlation of 0.80. The last column of table 1 reports estimates of equation (1) using the percent change in real median family income from the PSID as the explanatory variable. The results indicate an even larger implied bias in the CPI: nearly 2 percentage points per year. Thus, the PSID and CPS median-income figures yield broadly similar results, with the PSID median-income data suggesting an even greater bias than the Census data.

Table 2 reestimates equation (1) using as the explanatory variable the inflation-adjusted percent change in selected in-

come quintile cutoffs and in the median.[4] If the shape of the log-income distribution remained constant over time, these estimates would all provide the same estimate of bias. The magnitude of the implied bias (a/b) varies monotonically with the income percentile that is used as the explanatory variable, with a greater bias estimated for lower percentiles of the income distribution. For example, if real-income growth for the bottom 20th percentile of the distribution is used, the implied overstatement in the CPI is 1.69 points per year; if the 80th percentile is used, the implied bias is 0.63 point. These findings are not surprising, in view of the well-documented changes in the income distribution over the last two decades, but they do suggest that changes in the income distribution could present a problem for interpreting Nordhaus' regression based on the change in median income.

Two final alternative specifications were examined to probe the robustness of Nordhaus' results. First, a multiple regression was estimated in which the net percentage of families that reported an improvement in their financial situation was the dependent variable and the percent change in *nominal* median household income and the percent change in the CPI-U-X1 were the explanatory variables. Nordhaus' bivariate specification essentially imposes the restriction that the coefficients of these two explanatory variables are equal, but opposite in sign. The analysis presented here rejects this restriction at the 0.001 level, although the percent change in nominal income does have a positive coefficient (1.90) and the percent change in the CPI does have a negative coefficient (–4.42). Second, because the model presented by equation (1) is primarily descriptive, the X-intercept can be estimated by regressing X on Y. In other words, the intercept from a regression of the percent change in real median income on the net percentage of families that report an improvement in their financial situation provides an estimate of the bias in the CPI (that is, a direct estimate of $-a/b$). When such a reverse-regression model is estimated with the data from the median decile of table 2, the intercept is –0.37 (with a standard error of 0.36), indicating a smaller overstatement of the CPI than that produced by the earlier regressions. Both of these extensions tend to weaken Nordhaus' findings, although they do not overturn his central conclusion that the CPI overstates inflation.

Comparing changes in well-being

In principle, the net percentage of families reporting an improvement in their financial situation, as measured by the ISR survey (denoted Y), should equal the percentage of families that actually experienced an increase in real income, minus the percentage that experienced a decline in real income. (Let Z denote the latter variable.) If the regression

$$(2) \qquad Y = a' + b'Z,$$

is estimated, and if income is properly deflated, one would expect to find that $a' = 0$ and $b' = 1$. A joint test of these coefficient restrictions provides a more robust test of bias in the CPI than does Nordhaus' regression of Y on median real-income growth (X), because the restrictions should hold even if the shape of the income distribution changes over time. In addition, both measures reflect the life-cycle income profile.

To carry out this test, the PSID was used to calculate the percentage of families that experienced a rise or fall in income each year from 1968 to 1991. Each year, the sample consisted of all families with positive income in year t or year $t-1$.[5] First, income was deflated by the CPI-U-X1, and then the percentages of families that experienced a rise and a decline in income were calculated. The variable Z is the difference between these two percentages and is presented in table A1 in

Table 2. Regression of percentage of families reporting that they were better off minus percentage reporting that they were worse off on percent change in selected CPS deciles of household income, deflated by CPI-U-X1, 1968–95

Statistical quantity	Decile[1]				
	Second	Fourth	Median	Sixth	Eighth
Sample period	1968–95	1968–95	1968–95	1968–95	1968–95
Intercept (a)	4.23	4.41	3.91	3.31	2.14
	(1.70)	(1.54)	(1.50)	(1.66)	(1.80)
Slope (b)	2.50	3.12	3.33	3.20	3.41
	(.64)	(.64)	(.63)	(.72)	(.80)
a/b	1.69	1.41	1.18	1.03	.63
	(.87)	(.61)	(.46)	(.63)	(.61)
R-squared	.37	.48	.52	.43	.41
Average of dependent variable	5.52	5.52	5.52	5.52	5.52
Average of independent variable	.51	.36	.48	.69	.99

[1] Standard errors are in parentheses. Sample size is 28.

SOURCE: Data from Survey of Consumers, Institute for Social Research, University of Michigan.

Table 3. Regression of net percentage of families reporting that they were better off on net percentage of families reporting higher real income[1]

CPI adjustment factor	Constant	Slope	*R*-squared	*P*-value for joint *F*-test of constant = 0 and slope = 1	Mean of net proportion of families reporting increasing real income on Panel Study of Income Dynamics
2.0	8.15 (2.10)	0.91 (.26)	0.35	0.001	–3.13
1.5	6.25 (1.95)	.91 (.27)	.35	.012	–1.04
1.0	4.22 (1.97)	.90 (.27)	.34	.125	1.20
.5	2.20 (2.15)	.91 (.27)	.34	.595	3.40
.0	**–.05 (2.49)**	**.94 (.27)**	**.35**	**.954**	**5.70**
–.5	–2.48 (2.89)	.97 (.27)	.37	.384	7.99
–1.0	–5.08 (3.32)	1.02 (.27)	.39	.049	10.21
–1.5	–7.51 (3.81)	1.04 (.27)	.40	.004	12.29
–2.0	–10.12 (4.30)	1.07 (.27)	.42	.000	14.45

[1] Real income is nominal income deflated by the CPI-U-X1.

NOTE: The mean of the dependent variable is 5.30. The sample consists of annual observations from 1968 to 1991. Standard errors are in parentheses.

the appendix.[6] These data provide the right-hand-side variable for the regression model represented by equation (2), and the ISR data on self-reported changes in financial well-being used earlier form the dependent variable. Regression results are reported in the middle row of table 3 (highlighted in boldface type), and the relationship is depicted in the scatter diagram of chart 3. Notably, the linear relationship appears to have an intercept close to 0 and a slope close to 1; a formal joint *F*-test of these two coefficient restrictions has a *p*-value of 0.954, which is far from rejection of the null hypothesis.

The process of estimating this equation was repeated several times, using different hypothetical assumptions about bias in the growth of the CPI to deflate the microdata from the PSID and calculate the aggregate time-series *Z*-variable. In particular, 0.5, 1, 1.5, or 2 percentage points were added to or subtracted from the CPI each year to see which implied constant bias best satisfied the coefficient restrictions. (See table 3.) Surprisingly, the assumption of no bias (that is, using the unadjusted CPI-U-X1) was furthest from rejecting the restrictions that $a' = 0$ and $b' = 1$. When 1.5 points were subtracted from the annual growth in the CPI, however, the *p*-value for a joint test of $a' = 0$ and $b' = 1$ was 0.004, rejecting the no-bias restrictions. Interestingly, over the range of hypothetical biases reported in table 3, the slope coefficient is never very different from 1.0, while the intercept varies considerably, depending on the assumed bias. Consequently, the intercept term is responsible for the rejection of large positive and large negative CPI bias assumptions.

Because the fitted regression line passes through the mean of the dependent and independent variables, and because we expect an intercept of 0 and a slope of 1, another indication that the unadjusted CPI squares quite well with the data is the fact that, over the 24 years studied, the average difference between the percentages of families with annual income growth and annual income declines is 5.7 percent in the PSID and 5.3 percent in the self-reported ISR data. By contrast, if the bias in the CPI were 1.5 points per year, the PSID data would indicate that 12.3 percent of families experienced rising income in the average year. Because the slope coefficient is close to 1 when this variable is the explanatory variable, the intercept must be far from 0.

To examine more closely the value at which the no-bias restrictions best fit the data, a grid search was performed in which the assumed annual bias in the CPI was varied by ±0.1 between –2.0 and +2.0 percentage points. Specifically, the right-hand-side variable from the PSID microdata was recalculated for each of these adjusted CPI's, and equation (2) was then reestimated 40 times using each of these variables in turn as the explanatory variable. Chart 4 displays the *p*-value for the joint *F*-test of the restrictions $a' = 0$ and $b' = 1$ from each of these regressions.[7] The *F*-test is least likely to reject the restrictions if the CPI understates inflation by 0.1 percentage point per year, although the *p*-values are generally quite high if the CPI adjustment is within ±0.5 percentage point, and the regression model would have difficulty distinguishing among

Chart 2. Median real household income from Current Population survey (CPS) and median real family income from Panel Study of Income Dynamics (PSID), 1968–91

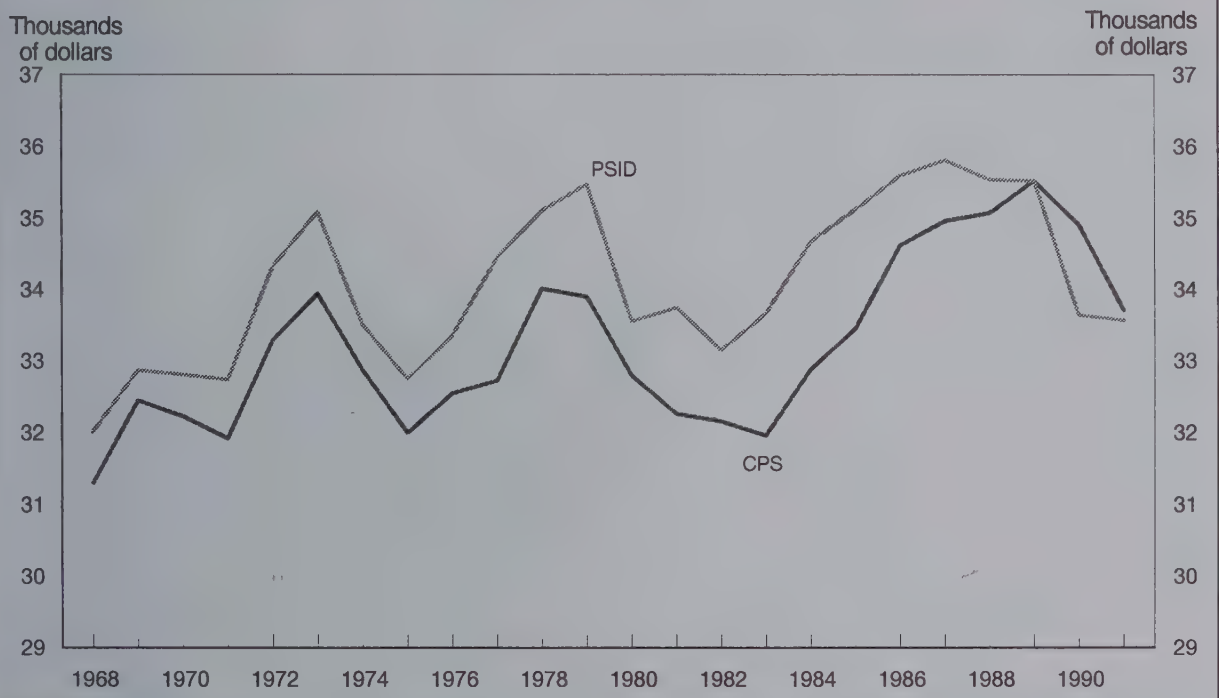


Chart 3. Scatter diagram of ISR and PSID measures of net percentages of families that are better off

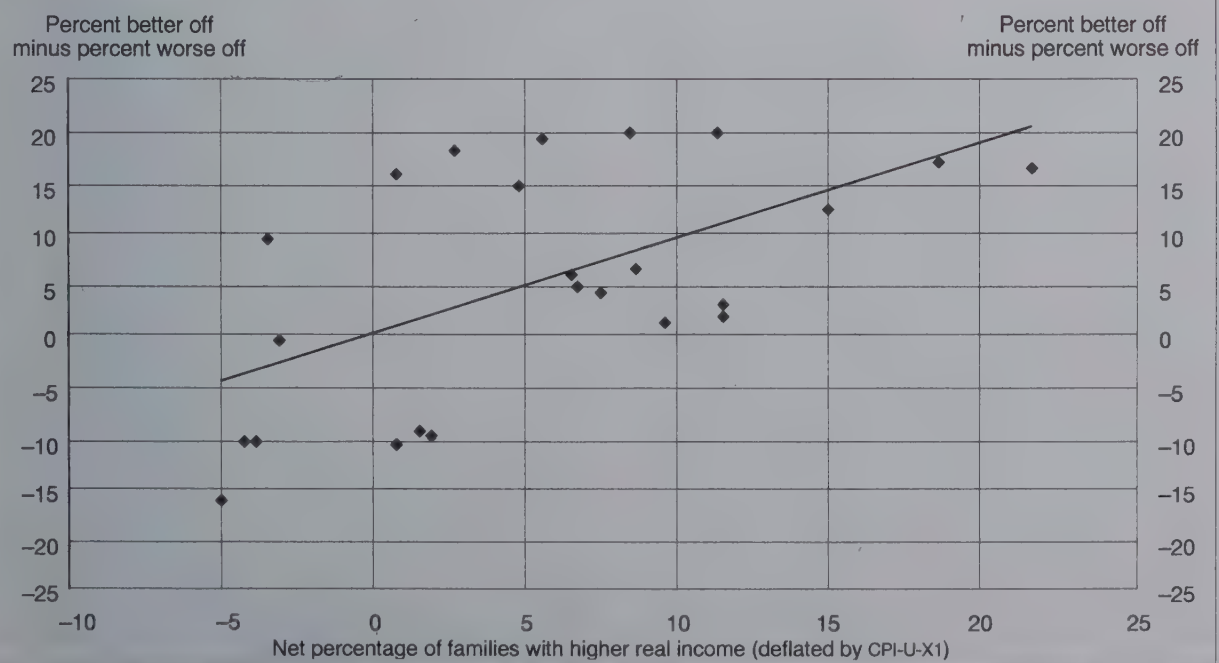
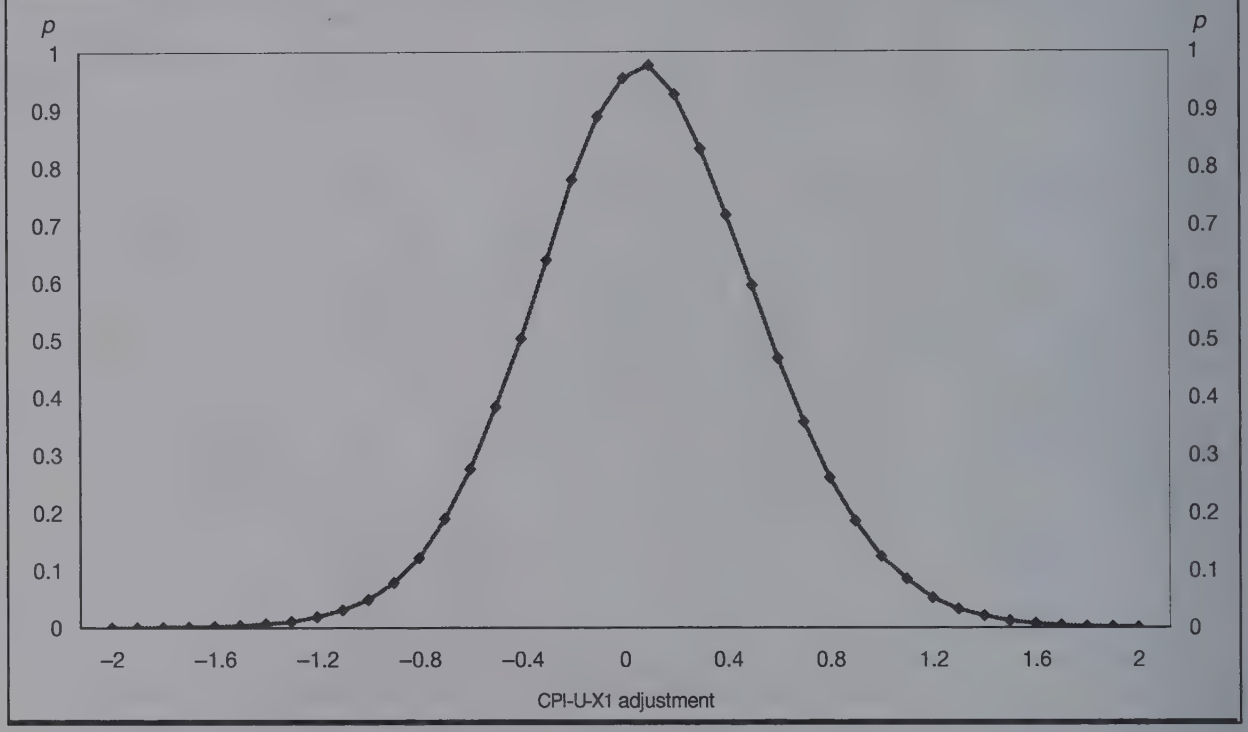


Chart 4. *p*-values for joint *F*-test of $a' = 0$ and $b' = 1$



biases in this range.

Three extensions of the analysis were carried out in order to check the robustness of the estimates based on the PSID. The first extension was motivated by the fact that about 30 percent of families in the ISR survey report that their financial situation is the same as in the previous year. The same analysis as in table 3 was performed, but now all families whose real income changed by less than ±10 percent were treated as having a constant financial situation. The 10-percent figure was chosen because it encompasses roughly 30 percent of the sample. If chart 4 is recalculated with these assumptions, the peak of the curve is at 0.3 percent, instead of 0.1 percent, suggesting a slightly greater understatement of price increases. The peak also becomes somewhat flatter if a 10-percent threshold for assigning a change in real income is assumed.

Second, to allow for possible money illusion (that is, the possibility that the public might misperceive nominal-income gains as leading to increased financial status, even if real income is constant), the PSID was used to create a new variable measuring the net percentage of families with *nominal* gains in income.[8] This measure was included along with the net percentage of families with gains in real income (deflated by the CPI). Interestingly, one cannot reject a unit slope for the measure of real-income gains in the ensuing regression. The net percentage of families with nominal-income gains, however, has a coefficient of –1.02 with a standard error of 0.21. These results suggest that the public does not interpret nominal-income gains as leading to increased financial status, conditional on real-income gains.

Last, the reverse regression of Z on Y was estimated; that is, the PSID measure of net percentage with real-income gains was regressed on the ISR survey measure. Because, apart from measurement errors and sampling errors, the two variables should be equal if the CPI is unbiased, one would still expect a zero intercept and unit slope from this reverse regression. However, when such a regression is estimated, the results are inconsistent with a zero intercept and unit slope. Moreover, if either a large negative bias or a large positive bias in the CPI is assumed, the zero intercept and unit slope are still strongly rejected. The reason for this rejection is that the time-series variability in the ISR measure is considerably greater than the variability in the PSID measure, even though the means of the two variables are similar when the CPI is used to deflate the PSID data. The lower dispersion in the PSID measure over time holds, regardless of whether the CPI minus 2 points or plus 2 points is used to deflate income. Why the PSID generates lower time-series variability in the net income changes is unclear, but this finding suggests that the PSID and ISR variables may be measuring different concepts. For example, swings in the self-perceived measure of financial status may reflect factors

other than just changes in real income.

UNLIKE MOST PAST RESEARCH, the results presented in this article suggest that changes in the CPI provide an accurate measure of changes in the cost of living.[9] Several caveats should be borne in mind, however, before concluding that the CPI provides an unbiased estimate of the cost of living. For one thing, the estimates presented here are imprecise, so a bias on the order of plus or minus 0.5 point per year could not be rejected at conventional significance levels. In addition, the estimates notwithstanding, there is a strong presumption that the CPI overstates the cost of living, if for no other reason than substitution bias. Much evidence also suggests that the CPI may inadequately adjust for changes in the quality of health care and other goods. However, measuring changes in the cost of living is complex and, in practice, requires strong assumptions that may not be met, such as the absence of consumer demand shifts.

For the preceding reasons, it is worth considering ways of gauging the plausibility of bias estimates in the CPI that do not rely heavily on imposed assumptions about economic behavior. Nordhaus provides an ingenious way to gauge bias in the CPI by comparing public opinion regarding financial well-being and measured changes in real median income.[10] The approach presented in the current article, which uses a more appropriate variable to measure changes in real income, appears to be an improvement over Nordhaus' pioneering effort; however, the results offer little evidence that the CPI overstates inflation.

Robert Pollak argues that, because professional conventions are required to calculate the CPI, its credibility depends critically on the public's perception that it is "not being manipulated as a policy instrument."[11] If this is the case, then using public-opinion data to gauge possible bias in the CPI may be quite valuable.

On the other hand, economists' reliance on revealed preference has a lot to be said for itself. One may question whether comparing measured income with public-opinion data such as data collected by the ISR survey provides a valid test of bias in the CPI, in both Nordhaus' approach and that presented in this article. In particular, perceived changes in financial well-being may be influenced by more factors than just changes in (correctly measured) annual real income. For example, changes in family size, expectations of future earnings or asset growth, expectations of indebtedness, college tuition costs, and home mortgage interest rates also may influence a person's perceived financial well-being. Furthermore, self-reported changes in financial status may be confounded by other, noneconomic factors that affect the national outlook, such as a military conflict or a successful mission to Mars. If these other possible influences on self-reported changes in financial well-being are correlated with changes in the proportion of families that experience real-income gains, then the simple model in equation (2) would yield a biased estimate of the extent to which the CPI under- or overstates changes in the cost of living. If, on the other hand, they amount to nothing more than additive "white noise" in the dependent variable, equation (2) will continue to yield unbiased estimates. □

Footnotes

[1] William Nordhaus, "Quality Changes in Price Indexes," *Journal of Economic Perspectives*, winter 1998, pp. 59–68.

[2] Between 1974 and 1994, the percent change in average household income for each quintile was –7 percent for the lowest quintile, –3 percent for the second quintile, 1 percent for the middle quintile, 9 percent for the fourth quintile, and 31 percent for the top quintile, using the CPI-U-X1 to deflate income. (See *Historical Income Tables for Households* (U.S. Department of Commerce, Bureau of the Census, various years), table H–3; also on the World Wide Web at <www.census.gov/hhes/income/histinc/h03.html>.)

[3] To be precise, a weighted average was calculated, where the weights were the sample size each month. (See appendix for details.)

[4] The income data are based on the CPS and reported in *Historical Income Tables for Households*, table H–1. Notice that because an additional year of data is available, the equations in table 2 were estimated with a longer sample of data than that used in table 1.

[5] The PSID income data pertain to the previous calendar year, so the data collected in the 1992 survey wave would apply to 1991. (See appendix for details of the calculations.)

[6] The observations were weighted by the PSID composite family weights in year *t*, which, in principle, should make the sample representative of the population. Note that, because it is impossible to determine whether income rose or fell for families with top-coded income in consecutive years, these observations were deleted from the sample. However, because the top code in the PSID is relatively high most years, such families make up less than 0.10 percent of the sample. Also eliminated from the sample were a small number of families whose income was bottom coded in consecutive years; the bottom code for income in the PSID is $1 per year.

[7] This technique can be viewed as a two-step version of the Fieller method for calculating confidence intervals. (See E. C. Fieller, "Some Problems in Interval Estimation," *Journal of the Royal Statistical Society*, vol. 16, no. 2, 1954, pp. 175–85.) In that method, a 95-percent confidence interval is calculated by finding all the possible values of the null hypothesis that are not rejected by the data at the 5-percent level. In the analysis presented in the current article, imposing alternative null hypotheses about the bias in the CPI requires that the variable *Z* be rederived from the PSID microdata and that the joint hypothesis test on the intercept and slope then be performed.

[8] See Eldar Shafir, Peter Diamond, and Amos Tversky, "Money Illusion," *Quarterly Journal of Economics*, May 1997, pp. 341–74, for recent evidence on money illusion.

[9] For discussions of possible biases in the CPI and relevant evidence, see the entire December 1993 issue of the *Monthly Labor Review*, as well as the following articles: Brent Moulton, "Bias in the Consumer Price Index: What Is the Evidence?" *Journal of Economic Perspectives*, Fall 1996, pp. 159–77; Michael Boskin, Ellen Dulberger, Robert Gordon, Zvi Griliches, and Dale Jorgenson, *Toward a More Accurate Measure of the Cost of Living*, Final Report to the Senate Finance Committee, Dec. 4, 1996; and Matthew Shapiro and David Wilcox, "Mismeasurement in the Consumer Price Index: An Evaluation," in Ben Bernanke and Julio Rotemberg, eds., *NBER Macroeconomics Annual, 1996* (Cambridge, MA, MIT Press, 1996), pp. 93–142. For evidence on new goods, see especially Timothy F. Bresnahan and Robert J. Gordon, eds., *The Economics of New Goods* (Chicago, University of Chicago Press, 1997).

[10] Nordhaus, "Quality Changes."

[11] Robert Pollak, "The Consumer Price Index: A Research Agenda and Two Proposals," *Journal of Economic Perspectives*, winter 1998, pp. 69–78; quote from p. 75.

APPENDIX: About the data

This article uses data from the University of Michigan's Institute for Social Research (ISR), the Census Bureau, and the Panel Study of Income Dynamics (PSID).

The net percentage of families whose financial situation improved, which is the dependent variable in the regressions presented in the article, is constructed from data from the ISR's Survey of Consumers. This ongoing survey asks a sample of roughly 500 families per month a series of questions about their views concerning various economic issues, such as their current and expected future financial situation and current and future business conditions. The specific survey question used in the article is "Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?" Each quarter, the ISR reports an index that equals the percentage of families responding that they were better off financially than they were a year ago, minus the percentage of families reporting themselves worse off, plus 100. The analysis in the article computes the yearly net percentage as the average of the four calendar quarters of the index, weighted by the number of observations per quarter, minus 100. (See table A1.)

In the Census Bureau data, median household income is obtained from table H-5 of the *Historical Income Tables for Households*; quintile income is obtained from table H-1.[1] The article also uses the CPI-U and CPI-U-X1, which is taken from table B-60 of the 1997 *Economic Report of the President*. In replicating Nordhaus' results, for example, nominal median household income from table H-5 is deflated by the CPI-U, and then the percentage change from year to year is computed.

Lastly, data from the PSID are used to compute the net percentage of families with higher real income from year to year, which is the *Z*-variable in equation 2. Because there is no way to directly track families from one year to the next, the analysis examines families with the same head in consecutive years.

The variables used from the PSID family data are the interview number, total family money income,[2] and family weight (the core weights for the sample, which excludes the new Latino sample for 1990–92, code v18943 in 1990). Also used are the 1968 identification number, individual number, interview number, status, and variables associated with the individual's relation to the head of the

Table A1. Key variables used in analysis, 1968–96

Year	Net percentage of families better off, from ISR survey of consumers	Percentage change in median real income, from PSID	Estimated percentage better off minus percentage worse off, from PSID			Number of families
			CPI	CPI minus 1 percentage point	CPI plus 1 percentage point	
1968	16.42	5.92	21.67	25.32	16.72	4,130
1969	12.38	2.68	15.04	18.46	11.52	4,170
1970	5.98	–.19	6.57	11.18	2.44	4,388
1971	1.31	–.21	9.54	13.78	5.03	4,568
1972	17.11	4.83	18.63	22.37	14.62	4,784
1973	4.33	2.23	7.51	11.55	3.19	4,988
1974	–10.04	–4.50	–4.14	–.56	–8.27	5,213
1975	–10.26	–2.27	–3.86	.34	–9.34	5,358
1976	2.14	1.84	11.51	15.81	7.47	5,513
1977	6.63	3.28	8.58	14.64	3.00	5,671
1978	3.39	1.93	11.46	16.46	7.87	5,812
1979	–9.43	1.05	1.52	6.45	–3.62	5,965
1980	–15.74	–5.42	–4.96	–.64	–9.77	6,157
1981	–10.24	.57	.81	4.93	–3.63	6,253
1982	–9.75	–1.76	1.92	5.71	–2.27	6,321
1983	4.74	1.55	6.89	10.76	2.54	6,417
1984	20.24	3.00	11.43	16.34	7.06	6,449
1985	15.00	1.31	5.02	9.37	.24	6,557
1986	20.25	1.34	8.61	13.37	3.60	6,571
1987	18.06	.61	2.89	8.51	–1.88	6,613
1988	19.49	–.76	5.61	10.51	1.54	6,673
1989	16.00	–.26	.90	6.67	–3.78	6,702
1990	9.50	–5.11	–3.22	1.47	–8.06	6,827
1991	–.25	–.21	–3.01	2.23	–7.50	6,867
1992	–4.01	—	—	—	—	—
1993	5.26	—	—	—	—	—
1994	11.76	—	—	—	—	—
1995	14.25	—	—	—	—	—
1996	15.50	—	—	—	—	—
Mean (1968–91)	5.30	.48	5.70	10.21	1.20	....
Standard deviation (1968–91)	11.46	2.83	7.20	7.06	7.38	....

NOTE: The CPI used to deflate income is the CPI-U-X1. Number of families pertains to preceding three columns. Dash indicates data not available.

family, all from the PSID individual data.

The 1968 identification number and individual number were concatenated to create unique individual identification numbers so that individuals could be tracked over time. Family and individual data were then merged year by year on the basis of the interview number, and only the family heads' observations were retained, using the status variable and the relation-to-head variables; an individual is a head of the family if relation to head = 1 for 1968, status = 1, and relation to head = 1 for 1969–82, and if status = 1 and relation to head = 10 for 1983–92. The result of these operations was a data set that includes total family money income, the family head's individual identification number, and the family weights for each year. With this data set, real total family money income is compared from one year to the next for each family, using the head's individual identification number to match families. These data are then used to compute the net percentage of families with higher real income in year t compared with year $t-1$, utilizing the CPI-U-X1 (plus or minus up to 2 percent) to deflate nominal income each year. Families are included whenever they are in the sample in 2 adjacent years.

Because of income censoring, some family heads are eliminated from the analysis. Total family money income is top coded at $99,999 from 1968–79 (using 1967–78 income), $999,999 in 1980 (using 1979 income), and $9,999,999 thereafter. Observations for which total family money income is above $99,999 in consecutive years from 1968 to 1979 and those for which income is top coded in 1979 and above $99,999 in 1980 in 1979 dollars are eliminated,[3] as no determination can be made as to whether those families' real income rose or fell over the years in question. (For example, if a family's income is top coded in 1976 and 1977, but falls below $99,999 in 1978, that observation is eliminated from the 1976–77 comparison, but is counted as having lower real income in the 1977–78 comparison.) Total family money income is bottom coded at $1 in all years, so observations for which total family money income is reported at that level in consecutive years also are eliminated, because no determination can be made as to whether those families' real income rose or fell.

Also excluded are observations in which the head of the family changed from year to year. If, for example, the head of a certain family is different in 1976 than in 1977, but remains the same in 1978, that family is eliminated from the 1976–77 comparison, but is included in the 1977–78 comparison (because only the head of the family is being tracked).

Footnotes to the appendix

[1] *Historical Income Tables for Households* (U.S. Department of Commerce, Bureau of the Census, various years), tables H–5 and H–1.

[2] Total family money income (variable number v16144 in the 1988 PSID data set) is "the total of all members' earnings, transfers, and asset income from the prior calendar year." For 1988, this is the sum of variable numbers v14911 through v14918, v14922 through v14925, v14928, v14930, v14932, v14933, v14943, v14946, v14947, v14949, v14952, v14954, v14956, v14957, v14959, v14961, v14963, v14964, v14967, v14968, v14970, v14973, v14975 through v14977, v14979, v14981, v14983, v15061, v15066, v15071, v15076, v15081, and v15089 through v15099.

[3] Observations are comparisons of a family in year t with that same family in year $t-1$. Families need not be in the sample all years. Note that 1980 nominal income is deflated by the CPI-U-X1.

Competition drives the trucking industry

In the wake of deregulation and the intense competition that followed, the trucking industry has radically changed the quality and types of services it provides its customers; today, the emphasis is on efficiency, and the ultimate beneficiary is the American consumer

Cynthia Engel

The Nation's freight bill hit an all-time low in 1996, with shipping costs accounting for only 6 percent of gross domestic product, compared with 7.6 percent in 1980.[1] Nearly 75 percent of freight is transported by truck at some point in the distribution chain,[2] and consumers have benefited from a myriad of factors that have improved service and lowered freight costs. The trucking industry has weathered many challenges, some of which emerged from within the industry, and others that sprang up in the economic environment.

The adoption of just-in-time delivery systems, new developments in technology, deregulation, and increasing competition between transportation sectors have forced the trucking industry to pay more attention to customers' needs. In particular, companies have sought to meet requirements for more reliable and frequent deliveries, and thus reduce warehousing and transit costs. These savings, passed on to consumers and businesses, have contributed to more competitively priced products in a global economy.

Cost savings have been achieved largely at the expense of for-hire truckdrivers,[3] whose real average hourly earnings (in 1982 dollars, as deflated using the Consumer Price Index for Urban Wage Earners and Clerical Workers) declined by 40 percent[4] between 1978 and 1996, compared with a 13-percent decrease for all private sector workers. But while the payments for labor services in trucking have declined in real terms, the demand for these services is increasing. The industry gained 586,000 jobs between 1980 and 1994, and trucking jobs are projected to increase by 299,000 between 1994 and 2005,[5] which places them among the top 25 occupational groups for projected employment growth. Increased demand and deteriorating wages have resulted in an industry that is plagued by frequent labor shortages.

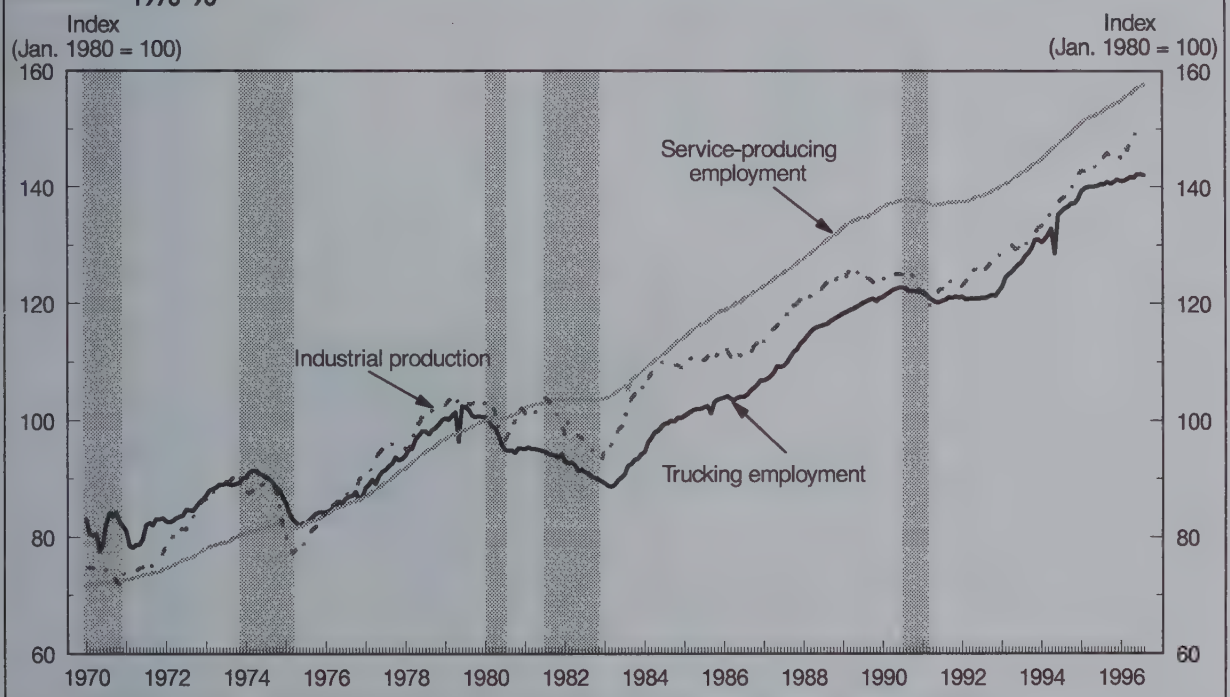
This article examines some factors that have affected trends in employment and wages of for-hire trucking employment over the last 30 years. First, we review employment trends in the industry, and then look at the changing character of the trucking labor market, as well as other factors that have wrought change in this industry.

Trucking employment

Employment growth related to industrial production. Trucking employment[6] generally correlates with industrial production,[7] declining in recessions and increasing during recoveries. (See chart 1.) The cyclical pattern of employment in trucking thus contrasts with that of the other private service-producing industries. For example, employment in the service-producing sector actually increased during the 1973–75 and 1980–1982 recessionary periods, while industrial production and trucking employment fell. Although employment trends in trucking appear to have been less cyclical in the

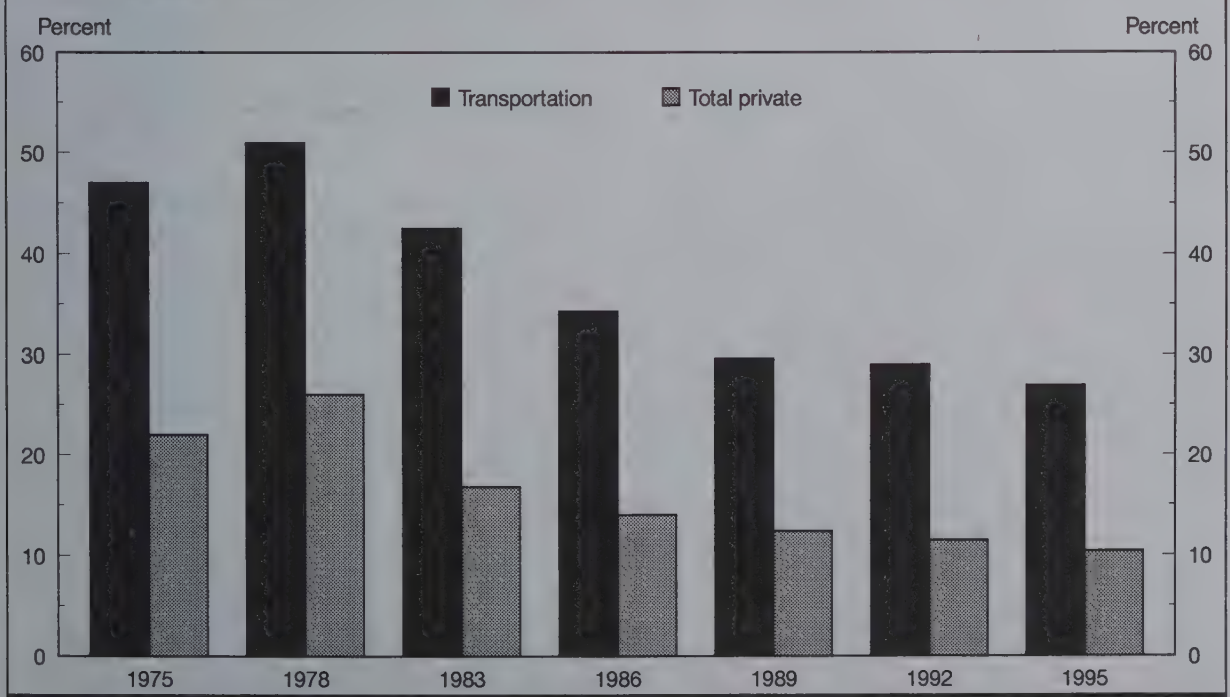
Cynthia Engel is an economist in the Office of Employment and Unemployment Statistics, Bureau of Labor Statistics.

Chart 1. Indexes of trucking and service-producing employment, and of industrial production, 1970–96



NOTE: Shaded areas denote recessionary periods, as designated by the National Bureau of Economic Research.

Chart 2. Percent of employees belonging to unions in the transportation sector and in private industry, selected years, 1975–95



1990s, a large portion of industry sales continues to originate from the manufacturing sector. Therefore, the trucking industry, while classified among the service-producing industries, still tends to react quite strongly to changes in industrial production, as indicated in the following tabulation of recession-related peaks and troughs in trucking and warehousing employment (monthly data, seasonally adjusted):

Recession		*Trucking employment (in thousands)*		
Peak	*Trough*	*Peak*	*Trough*	*Loss*
November 1973	April 1975	1,198	1,090	108
June 1979	September 1980	1,360	1,256	104
January 1981	February 1983	1,268	1,177	91
June 1990	April 1991	1,632	1,600	32

While most job losses in trucking are related to economic contractions, developments between the 1980 and 1981–82 recessions are in need of explanation. Employment losses over this period may have been due to rapid restructuring in the industry that resulted from new legislation. (See next section.) The combined recessions and industry restructuring resulted in a net job loss of 183,000 between June of 1979, the prerecession peak of the employment series, and February of 1983, the series trough following the second of the back-to-back recessions. Employment losses were not quickly recovered, with the industry taking 2 years to hire up to prior employment levels.

Growth was moderate from 1985 forward. Even the 1990–91 recession had only a modest impact on employment compared to earlier downturns, with job losses measuring about one-third those posted over each of the prior three recessions. However, the subsequent recovery was slow, with almost no employment gains occurring through 1993. The following year was marked by especially strong growth in employment, although increased subcontracting of trucking services from other industries may have accounted for some of this.[8] Thereafter, payroll employment plateaued in 1995 and through 1996.

Employment and legislation. Major legislation affected the trucking industry in the 1980s and 1990s. Industry restructuring occurred beginning in 1980, when air, rail, and trucking services were all deregulated to some extent. The Motor Carrier Act (MCA) of that year allowed for interstate competition in the for-hire trucking industry, Standard Industrial Classification (SIC) 42, which accounts for a small portion of the Nation's trucks, but a relatively large portion of freight movement. Yet, interstate deregulation was only the beginning of renewed competition.

Shortly after the deregulation of interstate operations, *intrastate* regulations also were dismantled. Before Federal preemption of States' authority in 1995, most States controlled the routes, rates, and services of motor carriers within their borders. Continued circuitous routing of shipments and use of empty trailers on return trips were common, both examples of inefficiency. Deregulation of intrastate trucking first began in Florida in 1980, followed in Maine and Arizona in 1982, and later in five other States.[9] Then, in 1995, the Trucking Industry Regulatory Reform Act (TIRRA) prohibited all States from regulating carriers' routes, rates, or services. States were still allowed to regulate such areas as safety, financial fitness, hazardous material movement, and vehicle size and weight.

While the impact of deregulation is difficult to separate from other factors, it is evident that growth in employment (including self-employment) was stronger during the period just prior to deregulation. At that time, the Interstate Commerce Commission (ICC) lowered restrictions for new entrants to the industry in anticipation of deregulation.

Because deregulation and recessionary economic conditions coincided, it is unknown how much of the reduction in employment between 1979 and 1983 is due to industry restructuring, and how much is due to economic conditions. One can speculate that it is a bit of both. The official estimate of total savings due to the Motor Carrier Act of 1980 is about $10 billion annually.[10] When savings in inventory costs are added, gains have been estimated to be 6 times that figure.[11]

The economic situation at the time when the Trucking Industry Regulatory Reform Act took effect bears some resemblance to that at the time when the Motor Carrier Act was implemented, in that industrial production had begun to decline. There was a marked slowdown in payroll employment growth after TIRRA. However, when growth among the self-employed in 1995 is factored in, there appears to be little change in employment trend. (See next section). Nevertheless, increased efficiency arising from TIRRA will generate a $43 billion savings over 5 years, according to a source in the logistics industry.[12]

Trucking-related jobs. While employment in transportation and warehousing comprises the majority of trucking jobs, it does not include almost 500,000 jobs among self-employed truckers[13] and transportation brokers. (See table 1, which illustrates growth between employment peaks.) Among self-employed truckers, only those supporting trucking and warehousing are reflected here; these workers account for 80 percent of all self-employed truckers, with the remaining jobs supporting other industries. Most of the increase among the self-employed occurred between 1975 and 1982, with growth subsequently flat until 1995, when TIRRA was passed. (As mentioned earlier, employment of self-employed truckers picked up in 1995 when growth in the number of workers on payrolls in the trucking industry slowed.)

Both the self-employed and subcontracting trucking companies are involved in leasing arrangements with trucking companies. Insight into this contracting activity is captured in the Census Bureau's Motor Freight Transportation and Warehous-

Table 1. **Employment in trucking and trucking-related jobs, 1983–1996**

[Numbers in thousands]

SIC	Trucking industry segment	1983	1992	1995	1996	1983–92		1992–95		1995–96	
						Change	Annual rate of growth	Change	Annual rate of growth	Change	Annual rate of growth
	Total jobs	1,454	1,970	2,273	2,343	382	2.9	302	5.1	70	3.1
	Payroll jobs in:										
42	Trucking and warehousing	1,216	1,611	1,867	1,878	395	3.6	256	5.3	11	.6
421	Trucking and courier services	1,132	1,484	1,721	1,725	353	3.5	237	5.3	4	.3
422	Public warehousing and storage	85	124	142	149	39	5.1	18	4.9	7	4.7
473	Freight transportation arrangement	—	134	167	182	—	—	33	8.1	15	9.1
42	Self-employed truckers	238	225	239	283	–13	–.6	14	2.1	44	18.4

ing Survey, which indicates that the leasing of drivers with equipment increased by 50 percent between 1986 and 1995, averaging an annual growth rate of 6 percent per year.[14] Leasing the services of drivers accounted for 66 percent of purchased transportation by trucking companies in 1995.[15] Growth among the self-employed between 1995 and 1996 is corroborated by an increase of 80 percent in miles driven by leased drivers.[16] Further evidence of the participation of truckers in leasing arrangements comes from the Current Population Survey, which shows that truckers are represented heavily among on-call workers.[17]

As inter- and intrastate deregulation opened new routes and introduced new suppliers, third-party transportation brokers and freight forwarders rushed in to connect suppliers of freight services with customers. Transportation brokers operate between the shippers who need to move goods and the (truckload) carriers, creating a link between the two. Growth in this industry, captured in SIC 473, Freight Transportation Arrangement, has been dramatic. Only 75 transportation brokers were licensed by the ICC in 1975. Subsequently, the business grew by leaps and bounds to approximately 6,100 brokers in 1988 and more than 8,000 by the end of 1993.[18] Employment in this industry segment rose at an annual rate of 7 percent between 1988 and 1996, more than twice as fast as jobs in trucking services. Demand for brokers' services was so great that their employment increased throughout the 1990–91 recession, and, unlike for-hire trucking, brokers have posted accelerated job growth since the passage of TIRRA.

These trucking-related job gains have come on top of the already significant job gains evident in the for-hire industry. The new jobs contribute to a more flexible and dynamic trucking operation. Next, we review changes in pay and working conditions for persons employed in trucking services.

Hours and earnings

The transportation sector is more heavily unionized than private industry as a whole, but its trends in unionization are similar. (See chart 2.[19]) Union membership was even more prevalent in the trucking industry than in the rest of transportation prior to deregulation, according to unpublished data from the Current Population Survey. Sixty-two percent of for-hire truckers were unionized in 1973; this fell by half to 30 percent by 1984.[20] In 1996, 23 percent of truckers were unionized.[21]

National bargaining by the International Brotherhood of Teamsters facilitated widespread divergences between union and nonunion labor rates, with the widest occurring among the more heavily unionized operations. With the onset of price competition, nonunion carriers easily won business on the basis of lower labor costs,[22] causing union representation in the trucking industry to decline sharply. In response, unions appear to be increasing operational flexibility in recent contracts, especially in the 1994 National Master Freight Agreement.[23]

Earnings. Although wage levels are higher in trucking than in the total private economy (chart 3), real earnings in trucking have declined more rapidly since the early 1970s. The more severe reductions in wages have occurred among unionized employees. Union real wages for truckers averaged $12.45 (1985 = 100) during the 1973–78 period, and $11.15 during the 1979–85 period, according to Current Population Survey data.[24] Nonunion truckers' real wages changed very little between the two periods, suggesting that the wage premium for union truckers was declining. One estimate[25] yields a premium of 49 percent before deregulation and 26.5 percent afterwards, while another[26] yields a similar 48-percent union wage premium prior to deregulation and 30 percent thereafter. Other measures also point to dramatic reductions in union wages relative to nonunion wages.[27]

While these studies view the premium in terms of an hourly wage, a decline in nonunion hours mitigates the difference in weekly earnings. Paid hours of work by both union and nonunion laborers fell over the 1973–85 period, but evidence suggests that nonunion drivers experienced a greater drop in hours,[28] resulting in only a modest decline in the union weekly earnings premium.

The dramatic drop in weekly pay may partly have been a re-

Chart 3. **Real average hourly earnings in trucking and warehousing and in the total private economy, 1970–96**

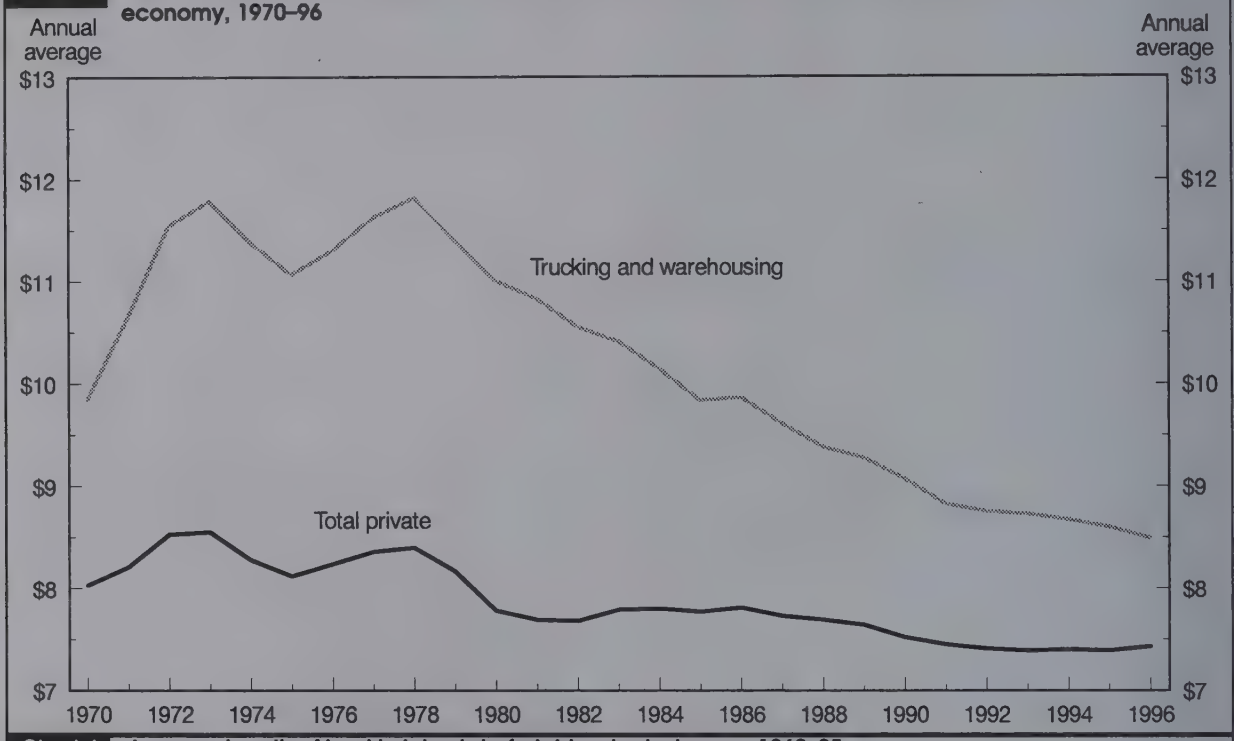
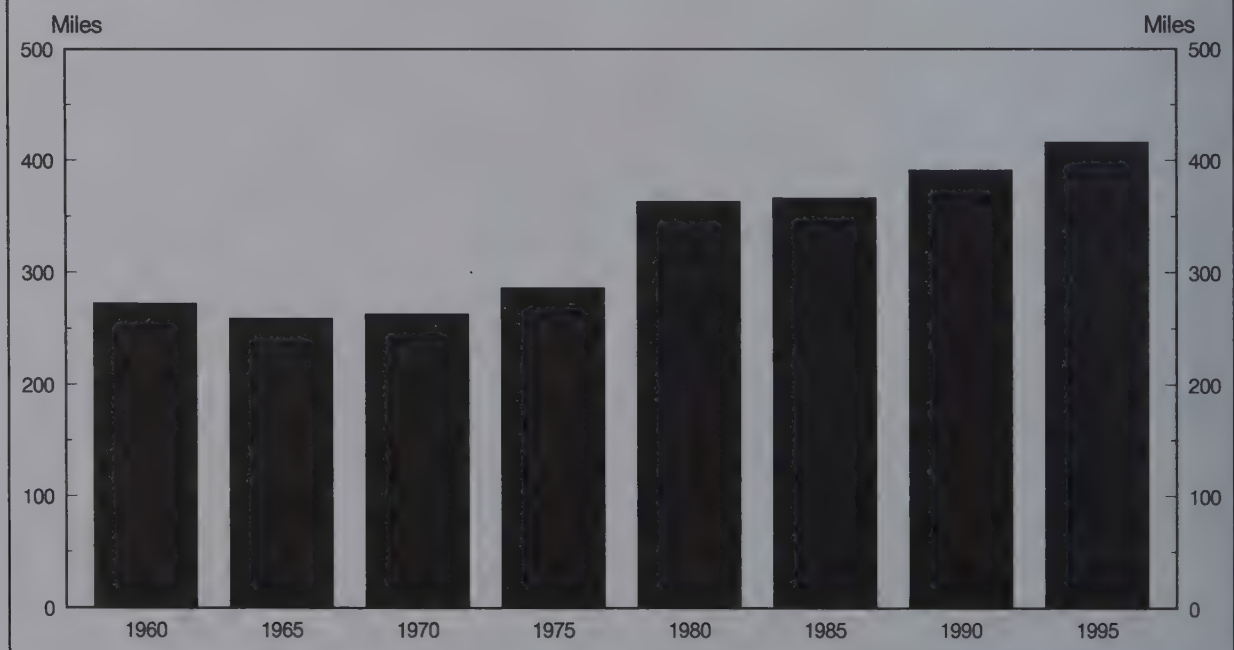


Chart 4. **Average length of haul in interstate freight, selected years, 1960–95**



NOTE: Data relate to Class I motor carriers of freight generating revenue of $10 million or more.
SOURCE: *National Transportation Statistics, 1997*, p. 21.

sult of a change in compensation plans as unionization waned, rather than a change in average miles driven. While union contracts more often guaranteed covered workers pay for their time, nonunion competitors often pay employees on other bases, such as mileage or freight, or some other contingent measure.[29] For these drivers, increases in hours do not increase pay when they are stalled in traffic. Carriers thus have shifted the burden of unforeseeable delays onto the truckers, who may then earn less per hour on the road. Moreover, real employee compensation per mile fell by an average of 44 percent between 1977 and 1987.[30] This demonstrates that drivers are bearing more of the cost of delays, that labor is being outsourced,[31] that labor efficiency is increasing, or a combination thereof.

Workload statistics. Traffic measures imply an increasing workload for most trucking employees. For example, the average length of haul for interstate freight increased dramatically between 1975 and 1985,[32] as trucking firms expanded their geographic coverage. (See chart 4.) Increased average hauls are normally associated with more time away from home, because most hauls are delivered by one operator (although this is not always the case).[33] Growth of intrastate freight and increasing "just-in-time"[34] demands may have caused trip lengths to decline for intercity movements,[35] although overall lengths of hauls have increased.[36]

High labor turnover. Increasing workloads and less-attractive pay have contributed to an extremely high driver turnover rate. Recent labor turnover statistics show that within the large truckload sector, labor turnover ranges between 80 and 100 percent a year; smaller carriers in the truckload sector experience turnover in the 60- to 80-percent range.[37] In the less-than-truckload[38] sector, which is generally better paid, turnover is closer to 15 percent.[39] One study calculated a 38-percent turnover rate for both types of carriers combined, compared with only 12 percent in manufacturing.[40] The high turnover rate in trucking is indicative of an occupation that is relatively easy to enter (highly labor-elastic), but difficult to perform over an extended period. For companies, high turnover results in a greater share of resources devoted to recruitment. Companies are beginning to experiment with wage increases in an effort to reduce these turnover costs.[41]

Safety issues. Driver exhaustion and poor working conditions among truckdrivers are of concern, as the safety of trucks on the Nation's highways affects us all. While truck fatalities on highways increased following deregulation, the number of new trucks outpaced additional deaths. Between 1975 and 1990, fatality rates for combination-trucks[42] declined by 144 percent, compared to 67 percent for all highway vehicles.[43] Several initiatives have improved safety in the interim, such as the commercial driver license program mandated by Congress in 1986. Highway fatalities attributable to heavy trucks are now lower than they were before 1980, despite tremendous growth in numbers of trucks and highway congestion.[44]

Other industry developments

As indicated earlier, trucking companies have been aggressive in pursuing strategies that yield cost reductions or increased efficiency. Carriers are faced with the same demands that transportation buyers face: better and faster service, specific delivery and pickup times, and better tracking and tracing of shipments. For shippers, predictable service sometimes is more important than the cost of goods movement, depending on whether the production schedule is "just-in-time" or not. Shippers of high-valued products such as computers, electronics, medical products, and auto parts are especially likely to demand fast, reliable delivery. If market demand can change suddenly, as it does in computer markets, products have shorter "lifespans" and must be turned around quickly. Whatever the case, transportation companies have responded by focusing on better management of time and assets in the delivery process, a strategy that relies on new technologies and less intermediate handling of goods in transport.

Just-in-time delivery. Customers began to demand quicker and more flexible service from the transportation network as they switched to just-in-time processes. In 1990, 18 percent of production was just-in-time, compared with 28 percent in 1995,[45] and inventory-sales ratios declined sharply over that 5-year period. Further improvements in inventory systems are expected to reduce the time that warehouses take to fill orders by 15 to 20 percent over the next 5 years, and to cut transit times by 5 to 10 percent.[46] As world trade grows and the business environment becomes even more sophisticated, demands for efficiency will continue to increase.

Many new technologies have come into play in the search for quicker and better distribution methods. For example, electronic data interchange, new vehicle location detection systems, and voice and data communication services[47] all are improving the logistical management of the trucking operation. Innovations in mobile communication systems have enabled companies to monitor such statistics as mileage traveled on a specific vehicle, fuel efficiency, best fueling locations, and vehicle location and speeds, as well as other data.[48] Companies can better utilize their equipment when they can quickly reschedule or combine existing delivery pickups, vastly improving their ability to manage inventory. Transportation brokers and third-party providers lower the cost of goods movement by filling empty return hauls and increasing freight volume per mile traveled.

More capital-intensive operations. The capital-to-labor ratio increased for the trucking industry in recent decades, due in part to the use of larger and more fuel-efficient trucks. This,

in turn, contributed to a 20-percent increase in the average tonnage of freight hauled between 1975 and 1995.[49] As a result, companies were able to spread variable costs over larger volumes of freight. While the fuel efficiency of the Nation's motor vehicles in general has increased, the move towards larger trucks partially reduced the gains but economized firms' use of labor. Any increased fuel efficiency in freight transportation also has been mitigated by the movement of freight from slow-moving modes (rail) to faster moving ones (air and truck).[50]

Like increasing vehicle size, the growing use of containerization in the intermodal industry also has helped firms to save on labor costs. Intermodal firms link different modes of transportation, often truck and rail or truck and air, for ultimate delivery to the customer. Providing a seamless flow of goods from the Nation's ports to railroads and highways, the intermodal delivery system has been supported through provisions of the Intermodal Surface Transportation Efficiency Act of 1991, which provides funding for intermodal projects. Between 1988 and 1995, the average annual rate of growth in this industry component was 6 percent.[51]

Containerization refers to movement of commodities in large containers or trailers rather than as smaller units, representing a shift to more capital-intensive operations. Use of containers reduces handling costs, costs of damage or theft, and very importantly, time required to transfer cargo. Because commodities are in bulky containers, cargo is moved by crane or forklift, a procedure requiring less manual labor than the handling of smaller packages. Forms of containerization took hold in the early 1980s in both rail-truck transport and truck-water transport,[52] and have continued to become more widespread.

The widening market. Competition is taking place across traditional modes of transport. In fact, in 1996 several major players in the trucking industry were reclassified into the air courier industry, due to a shift over time in their primary product. Because the decision to move freight has become a function of cost and time rather than regulation, traditional market definitions (and concentration levels) no longer apply, and this has resulted in a "market" that encompasses every possible mode of transport.

In response to deregulation and the intense competition that followed, the trucking industry has changed the quality and types of services it renders By most accounts, the resulting reductions in cost have been passed on to consumers. Today, trucking services are more responsive to our increasingly dynamic and complex economic environment, incorporating improvements in technology that have pervaded all industries.

Competition has resulted in increasing capital intensity in the industry, as firms strive to reduce average variable costs per load. Firms often are coupling with other transportation sectors to minimize the cost for specific delivery requirements by combining the efficiencies of different modes of transport. Increased competition also has led companies to change the character of compensation plans for their workers, replacing those based on time with plans based on output. Over the years, wage premiums for unionized truckers have been bid down, and union representation has fallen dramatically. Increasing workloads and less attractive pay have led to high labor turnover and persistent driver shortages. □

Footnotes

[1] "Low Shipping Prices May Curb Inflation," *The Wall Street Journal*, June 24, 1997, p. A2. The source of the data is Cass Information Systems. Estimates refer to freight movement by truck, rail, and sea. While reductions in the rate of revenue growth per ton-mile have occurred across all sectors, they have been most significant in rail and water transport. Also, see *National Transportation Statistics, Historical Compendium, 1960–1992* (U.S. Department of Transportation, Bureau of Transportation Statistics, 1993), p. 44.

[2] When measured by value rather than tonnage. See *1993 Commodity Flow Survey* (U.S. Department of Transportation, Bureau of Transportation Statistics, 1995).

[3] For-hire truckdrivers are those employed in SIC 42, Trucking and Warehousing, rather than across the spectrum of industrial classifications.

[4] Excludes the warehousing and storage component of Trucking and Warehousing, SIC 42. Rate of decline is calculated using annual averages.

[5] According to the 1996–97 *Occupational Outlook Handbook* (Bureau of Labor Statistics, 1996), p. 3.

[6] Employment data are from the Current Employment Statistics surveys as they were published prior to June 1997; some large companies, previously classified as trucking, were recently reclassified as air courier companies (SIC 4513). Data published since June 1997 reflect this reclassification; the new series for both trucking and air courier services begin with data for 1988, and therefore could not be used for long-term analysis.

[7] For freight volume by commodity type, see *American Trucking Trends*, 1996 ed. (Alexandria, VA, American Trucking Association, 1997).

[8] According to "Fleets change with time," *Logistics Management*, May 1996, pp. 35–45, "for-hire and contract carriers frequently are taking over roles traditionally filled by private fleets. Often, those vehicles carrying a company's colors belong to a leasing company...." Cited in the same article, a forecast of U.S. freight transportation to 2004 predicts greater outsourcing of private fleet tonnage, resulting in greater revenue growth for for-hire carriers compared to private carriers.

[9] "Regulation and Economic Performance: Lessons From the States," *Cato Journal*, spring/summer 1994, pp. 55–64.

[10] "The Impact of State Economic Regulation of Motor Carriage on Intrastate and Interstate Commerce," DOTT 9012 (U.S. Department of Transportation, May 1990).

[11] A report by the Brookings Institution estimates annual savings of up to $20 billion. See "The Economic Effects of Surface Freight Deregulation" (Washington, The Brookings Institution, 1990), p. 5. Gains of up to $65 billion have been estimated in "The Disunited States: A Country in Search of an Efficient Transportation Policy," Policy Analysis No. 84 (Washington, The Cato Institute, Mar. 10, 1987). In C. Winston, "Economic Deregulation: Days of Reckoning for Microeconomists," *Journal of Economic Literature*, March 1993, pp. 1262–69, savings were estimated at $10 billion in 1990 dollars, with consumers reaping $15 billion in welfare gains, and producers losing $5 billion.

[12] *Commercial Carrier Journal*, July 1, 1995. Savings estimates are by Cass Information Systems, a logistics company that has been producing an analysis of the logistics industry since 1989.

[13] Data on self-employed truckers are from the Current Population Survey.

[14] Statistics cover SIC 421, Trucking and Courier Services, Excluding Air, and exclude leasing by companies in other industrial classifications.

See *Motor Freight Transportation and Warehousing Survey, 1994* (Bureau of the Census, 1995), pp. 11–12; and *Motor Freight Transportation and Warehousing Survey, 1995* (Bureau of the Census, 1996), p. 6. While leasing is not the exclusive domain of independent truckers, they are an important component.

[15] *Motor Freight Transportation and Warehousing Survey, 1995*, p. 6.

[16] *American Trucking Trends*, 1997 ed., p. 16.

[17] Sharon Cohany, "Workers in alternative employment arrangements," *Monthly Labor Review*, October 1996, p. 43. On-call workers are those workers reporting only when they are asked to do so, typically for temporary work assignments.

[18] "Outsourcing in distribution: the growth in importance of transportation brokers," *Business Horizons*, November 1995, p. 40.

[19] Data are from the May CPS Supplement for 1975 and 1978, while data for 1983 forward are annual averages. The chart refers to the total transportation category, which includes for-hire trucking, railroad transportation, and air transportation. Trucking employment is the largest single component, comprising 37 percent of total employment in that category in 1980.

[20] Barry Hirsch, "Trucking Regulation, Unionization, and Labor Earnings," *The Journal of Human Resources*, summer 1988, pp. 296–319.

[21] Among employed wage and salary truck drivers aged 16 years and older. Estimates are CPS 1996 annual averages.

[22] One study indicates that 63 percent of the reduction in truckload operating costs was due to reduced labor expenditures, while in the LTL (less-than-truckload) sector, it was an even greater proportion of reductions. See T. Corsi and J. Stowers, "Effects of a Deregulated Environment on Motor Carriers: A Systematic, Multi-Segment Analysis." *Transportation Journal*, March 1991, pp. 4–28.

[23] The agreement allowed up to 28 percent of freight to be moved through rail-truck combinations; it also allowed "sleeper teams" of drivers, in which one driver sleeps while the other continues with delivery.

[24] Hirsch, "Trucking Regulation." Real wages are calculated as usual weekly earnings divided by hours worked per week. Earnings are converted to real wages by dividing by the Personal Consumption Expenditures component of the GNP deflator to convert to 1985 dollars.

[25] N. Rose, "Labor rent sharing and regulation: evidence from the trucking industry," *Journal of Political Economy*, December 1987, pp. 1146–78.

[26] Hirsch, "Trucking Regulation."

[27] According to Corsi and Stowers, compensation per employee in the highly unionized LTL (less-than-truckload) sector declined by 25 percent between 1977 and 1987, compared with almost no reduction in the highly competitive TL (truckload) sector. Less than truckload is a quantity of freight less than that required for the application of a truckload rate. It is usually less than 10,000 pounds and generally involves the use of terminal facilities to break and consolidate shipments, which a full truckload shipment would not. See Corsi and Stowers, "Effects of a Deregulated Environment," p. 15.

[28] James Peoples, "Trucking deregulation and labour earnings in the USA; a re-examination," *Applied Economics*, July 1996, pp. 865–75.

[29] "Collective bargaining after deregulation: do the Teamsters still count?" *Industrial and Labor Relations Review*, July 1995.

[30] Corsi and Stowers, "Effects of a Deregulated Environment."

[31] In "Effects of a Deregulated Environment," this argument was rejected because several trucking segments that experienced a decline in operator leasing also experienced a decline in employee compensation per mile.

[32] This also is supported in "Effects of a Deregulated Environment," which suggested an average increase of 100 miles among all truckload carriers between 1977 and 1987.

[33] With growth of just-in-time demands, this is also changing as some companies employ "sleeper teams" of two drivers, so that trucks can keep moving as one driver sleeps and the other completes the delivery.

[34] A method of production planning that minimizes inventory stocks in order to reduce overhead costs. Inventory is ordered "just in time" to meet production needs.

[35] A declining ratio of ton-miles per intercity trucking employee implies shorter trips and/or lighter volumes, although these workers represent only about 40 percent of employment in trucking and courier services. See *National Transportation Statistics, 1996* (U.S. Department of Transportation, Bureau of Transportation Statistics, 1995), pp. 40–42.

[36] Class I and Class II carriers increased their average length of haul, according to "Effects of a Deregulated Environment," p. 20. Also, average miles per truck in the for-hire industry increased according to the *1992 Census of Transportation, Trucking Inventory and Use Surveys, 1987–1992* (Bureau of the Census, 1995).

[37] Large truckload carriers are those earning revenues in excess of $30 million. Data are from the *Trucking Activity Report, 1995–1996* (Alexandria, VA, American Trucking Association, 1996).

[38] Movement of freight that is consolidated into full truck loads at terminals.

[39] "Driver Turnover and Management Policy: A Survey of Truckload Irregular Route Motor Carriers," *Transportation Journal*, winter 1994, pp. 15–21.

[40] "Driver Management Policies and Motor Carrier Safety," *The Logistics and Transportation Review*, February 1988, pp. 153–64.

[41] "J.B. Hunt pay hike will jolt industry," *Journal of Commerce*, Sept. 9, 1996, p. 1A. In the first quarter of 1997, pay raises at Hunt reduced turnover by more than one-half. See also "Pay raises for drivers trim truck companies profit," *Journal of Commerce*, Apr. 17, 1997, p. 2B.

[42] These are trucks that include a separate power unit combined with a trailer (or trailors).

[43] See *National Transportation Statistics, 1995*, pp. 111, 114.

[44] Fatalities were lower in 1993 than in 1975, although an increase in fatalities did occur between 1975 and 1985. See *National Transportation Statistics, 1995*, p. 107.

[45] *Statement of Federico Pena before the Committee on Transportation and Infrastructure Subcommittee on Surface Transportation, May 2, 1996*, Press Release (U.S. Department of Transportation, 1996).

[46] *Intermodal Freight Transportation*, GAO Report NSIAD-96–159 (U.S. General Accounting Office, 1996), p. 20.

[47] For example, Cue Network of Irvine, CA, has about 140,000 subscribers to its paging services, of which more than 50 percent are truckdrivers, according to the *Mobile Data Report* (Alexandria, VA, Telecom Publishing Group, Jan. 15, 1996).

[48] QUALCOMM, Inc. has been marketing state-of-the-art satellite-based mobile communication systems for the transportation industry, as well as decision support tools to achieve the maximum rate of revenue generation for the industry. See *Transport Technology Today* (Maple Publishing Co., November 1995), p. S9–S11. In another example, the truckload motor carrier Contract Freighters combines global positioning system satellite tracking of trucks and equipment with electronic data interchange to provide customers with real-time status on vehicles and shipments. Customized reports identify where delays and added costs in the supply chain are occurring. Improvements have enabled the firm to reduce the number of dispatchers and fleet managers it employs.

[49] Calculated by dividing the ton-miles of intercity freight by annual average trucking employment, where a ton-mile describes the movement of one ton of freight a distance of one mile. Ton-miles are computed by multiplying the weight in tons of each shipment transported by the distance hauled. Increasing weight is correlated with larger trucks. See *National Transportation Statistics, 1997*, p. 20.

[50] *Transportation Energy Data Book*, 16th ed. (U.S. Department of Transporatation, Bureau of Transportation Statistics, 1996), table 2.22.

[51] "Intermodal transportation: evolving toward the 21st century," *Transportation and Distribution*, February 1996, p. 43.

[52] J. Coyle and E. Bardi, *The Management of Business Logistics* (St. Paul, MN, West Publishing Co., 1984), pp. 287–88.

Earnings of husbands and wives in dual-earner families

As married women have become increasingly likely to work in recent decades, their contribution to family earnings has grown as well—indeed, in 20 to 25 percent of dual-earner couples, wives earn more than their husbands; these trends may have affected family decisionmaking, giving some women more input into family financial and career decisions

Anne E. Winkler

As has been well documented, labor force participation rates among married women have increased dramatically in recent decades, rising from 35 percent in 1966 to 61 percent in 1994. The increase was even more dramatic for married women with children under 3 years: 21 percent to 60 percent over the same period. As a result, dual-earner couples are swiftly replacing the traditional married-couple model of a "breadwinner" husband and "homemaker" wife. From 1970 to 1993, the proportion of dual-earner couples increased from 39 percent to 61 percent of all married couples.[1] Moreover, recent work by Chinhui Juhn and Kevin M. Murphy suggests that wives are entering the work force largely in response to women's rising labor market opportunities, rather than due to declining opportunities for their spouses.[2]

As the number of dual-earner couples rises, new questions are raised about gender roles within marriages. In the past, it was reasonable to assume that the husband's career was primary and took precedence over the wife's career. However, since the 1980s, falling real earnings for men combined with rising labor force participation and real earnings for women probably have affected decisionmaking within some married-couple families. Data from the Current Population Survey (CPS) show that the proportion of dual-earner couples in which wives earned more than their husbands increased from 16 percent in 1981 to 23 percent in 1996.[3] The figures suggest the presence of a growing number of married couples in which traditional gender roles vis-à-vis labor market activity may be reversed—that is, the wife is the primary earner and the husband is the secondary earner. As further evidence of the changing roles of husbands and wives in the family, research by Francine Blau indicates that the amount of time spent by women doing housework has declined since the 1970s, although women continue to spend considerably more time than men doing such work.[4]

Because the distribution of earnings within dual-earner families may affect household decisionmaking as well as labor market decisions, this article seeks to gauge the relative economic positions of husbands and wives in these families, as defined by their paid labor market activity. Data on matched pairs of husbands and wives are drawn from the March 1993 Annual Demographic File of the Current Population Survey. The analysis complements and expands upon previous work by Howard Hayghe on the contribution to family income made by working wives.[5] Particular attention is paid here to quantifying the number of "nontraditional dual-earner couples," or those in which the wife is the primary earner and the husband is the secondary earner. In addition, the article examines the joint distribution of husbands' and wives' educational attainment and wages to highlight the implications of marital

Anne E. Winkler is associate professor of economics and public policy administration, University of Missouri-St. Louis.

sorting on relative wage outcomes, as well as to ascertain the percentage of low-wage men married to high-wage women. The latter figure provides further evidence of the presence and extent of nontraditional couples.

Why look at spouses' relative earnings?

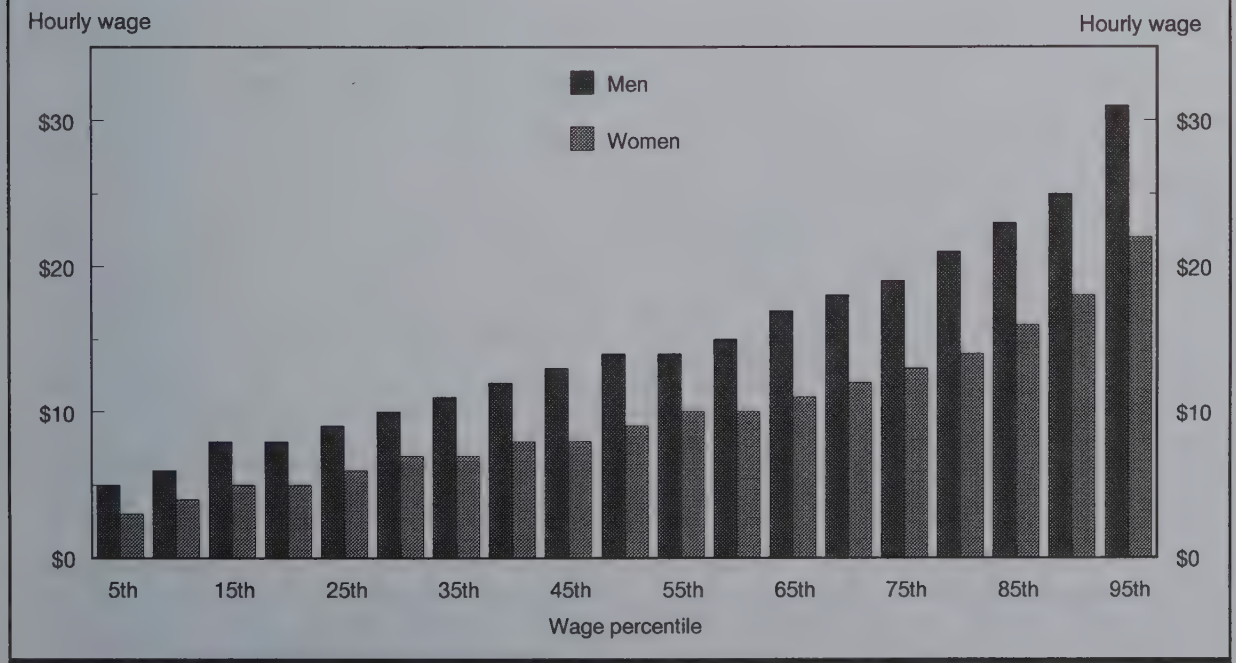
Examining the relative labor market earnings of husbands and wives provides insight into the status of women within dual-earner families. At least in some families, the greater the wife's relative earnings, the more control she is likely to have over family financial decisions. In the language of bargaining models of the family, as the relative income of wives rises, so does their "threat point"—the level of utility they would attain if they left the marriage—and thus also their bargaining power within the marriage.[6] Some research suggests, for example, that as wives' incomes rise relative to those of their husbands, household allocations more closely reflect the wives' preferences, such as greater resources transferred to children.[7]

Whose career takes precedence within the dual-earner family also likely affects labor market decisions and, hence, future earnings growth—that is, the individual with the primary career in the family is more likely to be able to initiate wage-enhancing moves to improve his or her career, and is less likely to be subject to moves with negative consequences initiated by the spouse. In addition, while the primary earner may never actually make a move like changing jobs, he or she may have more opportunities to investigate outside offers, present them to current employers, and bargain for higher wages at the current job.[8] As a result, the distribution of earnings within dual-earner families might even affect the size of the gender "wage gap."

Description of sample

As mentioned earlier, the sample was drawn from the March 1993 Supplement to the CPS. The data were restricted to dual-earner couples in which both the husband and wife were aged 25 to 64 at the time of the survey, and both were wage and salary workers with positive earnings in the year preceding the survey, 1992. Those with any farm or self-employment income were excluded.[9] All hours and earnings figures are based on labor market activity conducting during 1992. Hourly wages are computed for each spouse by dividing annual earnings by annual hours worked. To deal with CPS top-coding issues, the sample is restricted to those with computed hourly wages of $100 or less. (This restriction reduces the

Chart 1. Distribution of hourly wages for husbands and wives in dual-earner families, March 1993



sample by approximately 0.2 percent.) Given these sample restrictions, there were nearly 22 million dual-earner couples in the United States in 1993.

Given the well-known "earnings gap" between men and women, it is not surprising that the overall hourly wage distribution for husbands in dual-earner couples lies above the wage distribution for wives. (See chart 1.) The mean hourly wage was $15.42 for dual-earner husbands and $10.58 for wives. The chart also shows that the ratio of women's wages to men's wages is fairly constant at any percentile examined—from 65 to 72 percent.

Marital sorting

In describing relative wages and earnings of dual-earner couples, it is important to recognize that husbands and wives do not randomly pair together but rather tend to follow a process referred to as "positive assortative mating"—that is, more highly educated, higher wage men tend to pair with more highly educated, higher wage women; while less educated, lower wage men tend to pair with less educated, lower wage women. Table 1 cross-tabulates the respective education levels of husbands and wives in dual-earner couples, using five categories: less than high school, high school completion only, some college, 4 years of college, and more than 4 years of college. For each combination of educational attainment levels, the proportion of couples and their combined mean annual wage and salary earnings are shown. Summing the proportions along the diagonal that runs from the top left corner to the lower right corner shows that sorting by educational attainment is substantial. In 50 percent of dual-earner couples, husbands and wives had the same level of education. Furthermore, in nearly 80 percent of dual-earner couples, the husband had as much or more education than the wife, probably reflecting both gender differences in educational attainment and social custom.[10]

Table 1. Percent distribution and combined annual earnings of dual-earner couples by educational attainment level of both spouses, March 1993

Spouse's level of education	Husband, less than high school	Husband, high school graduate only	Husband, some college, no degree	Husband, 4 years of college	Husband, more than 4 years of college
Percent distribution					
Wife, less than high school	4.8	2.8	0.9	0.2	(1)
Wife, high school graduate only	4.6	21.6	8.9	3.5	.9
Wife, some college, no degree	1.3	7.0	11.6	5.0	2.2
Wife, 4 years of college	.3	2.2	3.5	8.0	3.7
Wife, more than 4 years of college	(1)	.5	1.0	2.0	3.7
Combined annual earnings					
Wife, less than high school	$28,581	$32,556	$41,304	$55,234	$60,996
Wife, high school graduate only	34,143	42,116	46,981	55,989	60,978
Wife, some college, no degree	39,035	46,337	50,975	61,648	69,363
Wife, 4 years of college	44,316	54,243	55,678	65,560	73,671
Wife, more than 4 years of college	42,146	61,310	63,738	73,572	85,179

[1] Proportion is less than 0.1 percent.

NOTE: The 25 cells in the percent distribution portion of the table sum to 100 percent; also, 21.9 million couples are represented.

Table 2. Percent distribution and combined annual earnings of dual-earner couples by wage quintile of both spouses, March 1993

Quintile of spouse's wage	Husband's wage in first quintile	Husband's wage in second quintile	Husband's wage in third quintile	Husband's wage in fourth quintile	Husband's wage in fifth quintile
Percent distribution					
Wife's wage in first quintile	6.5	4.1	3.6	3.0	2.5
Wife's wage in second quintile	5.1	4.7	4.0	3.2	3.1
Wife's wage in third quintile	3.4	4.5	4.0	3.8	3.5
Wife's wage in fourth quintile	2.2	3.6	4.9	4.9	4.4
Wife's wage in fifth quintile	1.9	2.6	3.9	5.3	7.5
Combined annual earnings					
Wife's wage in first quintile	$17,936	$27,202	$34,909	$43,463	$62,881
Wife's wage in second quintile	24,658	32,959	40,985	48,484	67,047
Wife's wage in third quintile	29,740	38,890	45,412	53,903	71,062
Wife's wage in fourth quintile	35,378	45,984	53,795	61,363	81,500
Wife's wage in fifth quintile	45,042	54,019	61,338	74,434	97,324

NOTE: The 25 cells in the percent distribution portion of the table sum to 100 percent; also, 21.9 million couples are represented.

Tables 2 and 3 are similar to table 1, except that they show the percent distribution of dual-earner couples by wage quintiles. (Table 2 is for all dual-earner couples, and table 3 is for those couples in which both the husband and the wife

worked full time, year round.) The tables indicate that positive assortative mating also occurs with respect to labor market outcomes. These results are not surprising, given the high degree of sorting by education level, and because the level of education is a key determinant of economic outcomes. If men and women married randomly, the proportions in each cell would equal 4 percent. Yet, both tables show that in nearly 30 percent of couples, the husband's and wife's wage was in the same quintile. Moreover, in nearly two-thirds of couples, the husband's wage was in the same or a higher quintile than the wife's wage.

Nevertheless, a comparison of tables 1 through 3 indicates that sorting is most pronounced by educational attainment, probably because many husbands and wives meet in school. On the other hand, a variety of factors, including differences in college major, availability of jobs, labor market discrimination, differences in occupational choices, household responsi-bilities, and family income effects, lead to a wider distribution of wage outcomes, even for those couples in which both spouses are highly educated.

Table 3. Percent distribution and combined annual earnings of dual-earner couples in which both spouses worked full time, year round by wage quintile of both spouses, March 1993

Quintile of spouse's wage	Husband's wage in first quintile	Husband's wage in second quintile	Husband's wage in third quintile	Husband's wage in fourth quintile	Husband's wage in fifth quintile
Percent distribution					
Wife's wage in first quintile	7.1	4.2	3.1	2.6	1.9
Wife's wage in second quintile	5.0	5.0	4.0	3.0	2.9
Wife's wage in third quintile	3.2	5.0	4.6	4.2	3.4
Wife's wage in fourth quintile	2.0	3.9	5.3	4.7	4.8
Wife's wage in fifth quintile	1.7	2.0	3.3	5.1	8.1
Combined annual earnings					
Wife's wage in first quintile	$25,167	$34,597	$42,612	$49,787	$73,628
Wife's wage in second quintile	32,950	40,315	48,267	54,887	74,724
Wife's wage in third quintile	39,031	45,758	52,381	62,167	79,196
Wife's wage in fourth quintile	44,402	52,467	60,045	67,104	86,702
Wife's wage in fifth quintile	55,377	65,850	71,720	82,093	108,870

NOTE: The 25 cells in the percent distribution portion of the table sum to 100 percent; also 10.4 million couples are represented.

Furthermore, the data indicate that the process of assortative mating results in considerable variance in earnings among dual-earner couples. As shown in table 2, for instance, combined wage and salary earnings ranged from $17,936 per year for couples in which both the husband's and wife's wage was in the lowest quintile, to $97,324 per year for couples whose respective wages were in the highest quintile.[11]

Relative earnings of husbands and wives

Table 4 shows mean hourly wages separately for husbands and wives, both in all dual-earner couples and in those in which both partners worked full time, year round. For both sets of couples, the data show that a substantial proportion of wives (25 percent) earned more than their husbands in 1992. Table 4 also shows median weekly "career" wages for husbands and wives in dual-earner couples. Each husband and wife was assigned a median weekly earnings figure that corresponded to his or her occupation.[12] The rationale for doing so is that occupational wages may better reflect career wages than current wages. This is especially relevant when trying to determine whether the wife's career or her husband's career takes precedence in the family. Husbands' and wives' careers may be at different stages. If, for example, a husband is on track to become a physician but currently is only a first-year resident, current wages would be a misleading measure of career wages. In addition, occupational wages are not as subject to short-term positive or negative wage fluctuations as are current wages. Notably, by the occupation measure, the proportion of wives who earned more than their husbands was 33 percent.[13]

Table 4 also provides figures on relative wages of dual-earner couples, stratified by selected quintiles into which the husband's wage falls. As would be expected, given positive assortative mating, as husbands' wages rise, wives' wages rise also. For instance, the mean hourly wage for husbands whose wage was in the lowest quintile was $6.06, compared with a mean wage of $8.09 per hour for their wives. For husbands whose wage fell into the top 20 percent, by contrast, their mean hourly wage was $28.14 and their wives' was $13.45.

Furthermore, the data indicate that wives earned more than their husbands in nearly 60 percent of the couples in which the husband's wage was in the lowest quintile, a result that holds whether current hourly wages or career wages are considered. Part of the explanation for this high percentage is the fact that the husband's wage has, by definition, been restricted to be low, while the wife's wage has not been similarly constrained. In sharp contrast, when the husband's wage was in the top quintile, only 6 to 7 percent of wives earned more than their husbands. It should again be noted that the results are related

to how the data were stratified—wives' wages are unconstrained and thus may lie in any quintile. Further, women generally earn less than men.

Table 5 differs from table 4 in that it considers relative *annual* earnings of husbands and wives—defined here as hourly wages multiplied by annual hours worked—and thereby allows the data to reflect labor supply responses to wages earned. By this measure, nearly 20 percent of wives earned more than their husbands, in the same range as the 25-percent figure obtained when relative *hourly* wages were considered.[14] Similarly, 55 percent of wives married to low-earner husbands earned more than their husbands, in the same range as the 60-percent figure shown in table 4.

Finally, like the study by Hayghe cited earlier, this study found that wives make an important contribution to family earnings. In all dual-earner couples, wives' earnings made up 35 percent of combined spousal earnings; in those in which both spouses worked full time and year round, wives' earnings made up 41 percent of combined earnings. Interestingly, regardless of whether dual-earner couples have very high or very low combined earnings, the wives' share of these combined earnings was fairly constant, at about 35 to 38 percent. (See the last 3 columns of table 5.)

Nontraditional couples

The figures discussed in the previous section suggest the presence of many "nontraditional" couples among dual earners, at least when it comes to labor market outcomes. As noted earlier, even among the sample at large, more than 25 percent of wives had current hourly wages that exceeded those of their husbands, and 20 percent of wives had greater annual earnings than their husbands. (This translates to wives earning more than their husbands in 4 to 6 million dual-earner couples.) Taken at face value, these figures suggest that in 20 to 25 percent of dual-earner families, there is a "role reversal" from the more traditional model—that is, the woman is the primary earner with the more lucrative position, and the husband is the secondary earner.

It might be argued that the figures just cited provide an upper-bound estimate of role reversal because, in many families, if a husband earns just a small amount less than his wife, he still may be perceived as the primary earner in the family because of traditional gender roles. Nonetheless, one must keep in mind that women, even those that are as qualified as men, tend to earn less than their male counterparts. From this vantage point, that such a large proportion of wives earned more than their husbands is quite notable.[15] Furthermore, a sizable proportion of wives, 15 percent, had wages that were 25 percent more than their husbands, and nearly 10 percent of wives had wages that were greater by 50 percent or more. Finally, nontraditional couples are especially common among dual-earner couples with low-wage husbands.

As further evidence of the presence of nontraditional

Table 4. Comparison of relative wages of husbands and wives in dual-earner couples by selected characteristics, March 1993

Characteristic	Total	Both worked full time, year round	Husband's wage in—		
			First quintile	Third quintile	Fifth quintile
Number of couples (in thousands)	21,857	10,377	4,371	4,371	4,371
Hourly wage comparisons[1]					
Wife's mean hourly wage	$10.58	$11.21	$8.09	$10.36	$13.45
Husband's mean hourly wage	15.42	15.24	6.06	13.67	28.14
Wife's wage as percent of husband's wage	68.6	73.6	133.5	75.8	47.8
Percent of dual-earner couples in which:					
Wife earns more than husband	25.2	25.4	57.2	20.6	6.5
Wife earns 25 percent more than husband	14.9	13.3	41.4	9.7	2.6
Wife earns 50 percent more than husband	9.7	7.4	31.6	4.8	1.0
Wife earns 100 percent more than husband	4.7	3.3	18.3	1.4	.4
Career wage comparisons[2]					
Wife's career wage	$464	$489	$415	$440	$529
Husband's career wage	526	533	322	505	756
Wife's wage as percent of husband's wage	88.2	91.7	128.9	87.1	70.0
Percent of dual-earner couples in which:					
Wife earns more than husband	32.8	35.3	63.9	28.6	5.8
Wife earns 25 percent more than husband	17.4	19.3	43.4	14.0	.6
Wife earns 50 percent more than husband	8.1	8.7	28.1	1.1	.2
Wife earns 100 percent more than husband	2.3	2.4	10.0	.0	.0

[1] Hourly wages are computed by dividing annual wage and salary earnings by annual hours worked.

[2] "Career wage" is defined as median weekly earnings associated with individual's occupation. (See text.)

NOTE: Data restricted to dual-earner couples in which both spouses were wage and salary workers, both had positive wages, and both were aged 25 to 64.

Table 5. Comparison of relative annual earnings of husbands and wives in dual-earner couples by selected characteristics, March 1993

Characteristic	Total	Both worked full time,	Husband's earnings in—			Family earnings in—		
			First quintile	Third quintile	Fifth quintile	First quintile	Third quintile	Fifth quintile
Number of couples (in thousands)	21,857	10,377	4,371	4,371	4,371	4,371	4,371	4,371
Annual earnings comparisons[1]								
Wife's mean annual earnings	$18,046	$24,079	$14,469	$18,141	$21,732	$7,782	$16,045	$31,267
Husband's mean annual earnings	33,028	34,870	10,085	29,492	62,810	12,796	30,080	58,174
Combined mean annual earnings	51,074	58,950	24,554	47,633	84,541	20,578	46,125	89,441
Wife's earnings as percent of husband's earnings	54.6	69.1	143.5	61.5	34.6	60.8	53.3	53.7
Wife's earnings as percent of combined earnings	35.3	40.8	58.9	38.1	25.7	37.8	34.8	35.0
Percent of dual-earner couples in which:								
Wife earns more than husband	19.9	20.7	55.4	13.9	2.4	29.6	18.2	15.7
Wife earns 25 percent more than husband	13.1	11.1	46.7	5.8	.6	23.5	11.3	9.2
Wife earns 50 percent more than husband	9.5	6.1	39.8	2.5	.1	19.7	7.8	5.2
Wife earns 100 percent more than husband	5.9	2.5	28.9	.5	.0	14.0	4.7	2.0

[1] Annual earnings defined as all wage and salary earnings from all jobs worked.

NOTE: Data restricted to dual-earner couples in which both spouses were wage and salary workers, both had positive earnings, and both were aged 25 to 64.

couples, table 2 indicates that, despite the process of positive assortative mating, in more than 400,000 couples (1.9 percent multiplied by 21.9 million) aged 25 to 64, wives at the very top of the their wage distribution were married to men at the very bottom of theirs. This is actually a lower bound estimate because it is based on the most extreme nontraditional pairing. Another way to look at the data in table 2 is to note that, contrary to popular perception, a similar percentage of very high-wage wives are paired with very low-wage husbands and vice versa. (This can be seen by comparing the proportion of couples in the lower left corner of the table with those in the upper right corner.) A similar pattern is found for the narrower set of dual-earner couples in which both spouses worked full time, year round. (See table 3.) One might argue that low-wage husbands are observed with high-wage wives only when current wages, which may be more subject to short-term fluctuations, are considered. An analysis of "career wages," however, would appear to refute that argument. Finally, it is important to note that a count of nontraditional couples would probably be considerably higher if families in which the wife is employed and the husband is completely out of the labor force (keeping house or caring primarily for children, for example) were included.

WHETHER THE HUSBAND'S OR WIFE'S CAREER takes precedence among dual-earner couples cannot be precisely determined because currently available survey data do not provide such information (none of the major surveys asks the question directly). By analyzing available information on earnings and occupations, however, we may reasonably draw some conclusions. The data presented here indicate that, although women tend to earn less than men, on average, a sizable number of dual-earner couples exists in which the wife is the primary earner. This is true even when more narrowly defined measures are examined, such as the proportion of couples in which the wife's wage exceeds those of her husband by 25 or 50 percent, or the proportion in which low-wage husbands are paired with high-wage wives. Arguably, these new kinds of couples may be altering the bargaining power in the family and, hence, family resource allocation. □

Footnotes

ACKNOWLEDGEMENT: The author gratefully acknowledges helpful suggestions from David C. Rose and financial assistance from a grant provided by the University of Missouri.

[1] The figures cited are from Francine D. Blau, Marianne A. Ferber, and Anne E. Winkler, *The Economics of Women, Men and Work*, 3rd ed. (Upper Saddle River, NJ, Prentice Hall, 1998), chap. 4.

[2] Chinhui Juhn and Kevin M. Murphy, "Wage Inequality and Family Labor Supply," *Journal of Labor Economics*, 15, no. 1, part 1, January, 1997, pp. 72–97.

[3] Bureau of the Census, Historical Income Tables-Families, Table F-19,

"Married Couple Families with Wives' Earnings Greater than Husbands' Earnings" (selected years); (http://www.census.gov/hhes/income/histinc/f19.html), accessed Feb. 27, 1997.

[4] From the late 1970s to the late 1980s, the amount of time spent by women doing housework declined from 4 times that spent by men to 3 times that spent by men. See Francine D. Blau, "The Well-Being of American Women: 1970–1995," *Journal of Economic Literature*, 36, no. 1, March 1998, pp. 112–65.

[5] Howard V. Hayghe, "Working wives' contributions to family incomes," *Monthly Labor Review*, August 1993, pp. 39–43.

[6] For a review of this literature, see Shelly Lundberg and Robert A. Pollak, "Bargaining and Distribution in Marriage," *Journal of Economic Perspectives* 10, no. 4, fall 1996, pp. 139–58; and Theodore Bergstrom, "Economics in a Family Way," *Journal of Economic Literature* 34, no. 4, December 1996, pp. 1903–34. See also specific papers by Mary Jean Horney and Marjorie B. McElroy, "Nash-Bargained Household Decisions: Toward a Generalization of the Theory of Demand," *International Economic Review* 22, no.2, June 1981, pp. 333–49; and Marilyn Manser and Murray Brown, "Marriage and Household Decisionmaking," *International Economic Review* 21, no. 1, February 1980, pp. 31–44.

[7] See Duncan Thomas, "Intra-household Resource Allocation: An Inferential Approach," *Journal of Human Resources* 25, no. 4, fall 1990, pp. 635–64; and "Like Father, Like Son: Like Mother, Like Daughter: Parental Resources and Child Height," *Journal of Human Resources* 29, no. 4, fall 1994, pp. 950–88. For other evidence of differing preferences between husbands and wives, see T. Paul Schultz, "Testing the Neoclassical Model of Family Labor Supply and Fertility," *Journal of Human Resources* 25, no. 4, fall 1990, pp. 599–634.

[8] One hypothesis that can be drawn from this discussion is that women's wages, on average, may be lower than those of otherwise similar men, not exclusively because of the fact that they are female, but also because they are, on average, more likely to be a secondary earner in the family. For a discussion and evidence, see Anne E. Winkler and David C. Rose, "The Impact of Career Hierarchy in the Family on Women's Wages," University of Missouri-St. Louis (July 1997).

[9] Age was restricted in order to limit the sample to those who had largely completed school but were not yet of retirement age. Workers with self-employment and farm income were omitted so that an hourly wage for each individual could be constructed.

[10] For a more detailed set of analyses that focus on the timing of schooling and marriage, see Robert D. Mare, "Five Decades of Educational Assortative Mating," *American Sociological Review*, February 1991, pp. 15–32.

[11] For discussions of the relationship between working wives, family income, and implications for inequality, see, for instance, Maria Cancian, Sheldon Danziger, and Peter Gottschalk, "Working Wives and Family Income Inequality Among Married Couples," in Sheldon Danziger and Peter Gottschalk, eds., *Uneven Tides: Rising Inequality in America* (New York, Russell Sage Foundation, 1993), pp. 195–221; and Lynn Karoly and Gary Burtless, "Demographic Changes, Rising Earnings Inequality, and the Distribution of Personal Well-Being, 1959–1989," *Demography*, August 1995, pp. 379–406.

[12] CPS respondents are coded by detailed occupation on the basis of the kind of work they perform for their employers. In this study, husbands and wives were placed in 1 of 42 "career" categories, including such occupations as engineers; secretaries, stenographers, and typists; sales workers, retail and personal services; construction trades; motor vehicle operators; and so on. Then, the husband and wife were each assigned the published median weekly earnings figure that corresponded to their occupation. The figures are for both sexes combined and were taken from the Bureau of Labor Statistics periodical, *Employment and Earnings*, January 1993, table 56. Hence, if both spouses were employed as physicians, each was assigned the same "career" wage.

[13] Additional analysis indicates that it is generally the case that both measures, current and career wages, tend to provide the same information for a given couple regarding which spouse earns more than the other. The number of cases in which both provided the same information ranged from 66 percent to 93 percent, depending on the percentage threshold (25 percent more, 100 percent more) used. Another point worth mentioning is that the percentage of wives who earn more than their husbands may well change as the composition of dual earners changes. For instance, those wives who enter the labor market earliest may have different characteristics, both observable and unobservable (motivation, ambition), than those who enter later.

[14] In "Working wives," Hayghe obtained fairly similar estimates in percentage terms, but his absolute estimates differed due to different sample definitions. Hayghe's study estimated that about 9 million wives earned more than their husbands in 1991, while the figure here, based on wage and salary workers aged 25 to 64, is about 4.3 million.

[15] See Blau, Ferber, and Winkler, *The Economics of Women, Men and Work*.

Welfare, work, and transit

Recent changes in social service programs mandate that States require parents or caretakers receiving welfare benefits engage in work within 24 months of receiving such public assistance. A recent study, *Welfare Reform and Access to Jobs in Boston*, from the Bureau of Transportation Statistics of the U.S. Department of Transportation, outlines some of the challenges facing recipients trying to get to work and the transit systems trying to provide them an affordable transportation option.

The basic problem is that employers in the industries most likely to hire entry-level workers are often located in places both remote from where public assistance recipients live and difficult to travel to. Some suburban areas can only be reached by commuter rail, which is expensive and in many cases fails to provide direct service to the actual job site. Even when the public transportation system did provide direct access, the trip often takes too long or requires multiple transfers. Also, transit service hours may not match work schedules.

The report detailed a study of transit service from a central point in one area of Boston with a high concentration of public assistance cases to potential employers in high-growth areas for entry-level work. The findings were stark:

- Not one of the employers could be reached within 30 minutes by public transit.
- About 14 percent could be reached within 60 minutes.
- About a third could be reached within 90 minutes.
- Almost half could not be reached within 2 hours.

The report concludes that "technology innovations such as flexible routing, advanced paratransit services, and other applications of information technology" be considered for improving service, along with service innovations such as extended schedules, modified routes, and daycare services at transit stations.

Time well spent

It has been some time since we have had much fun here at BLS with price data and the cost of living. The Dallas Federal Reserve Bank, on the other hand, included an intriguing essay on "Time Well Spent: The Declining *Real* Cost of Living in the United States," in their *1997 Annual Report*. The authors, W. Michael Cox and Richard Alm, rather than adjust prices to a basket of goods, normalized them to wages in manufacturing and expressed values in the working time required to purchase any of a wide range of goods and services. This allowed a number of useful comparisons of what they term the real cost of living, not "measured in dollars and cents but in the hours and minutes we must work to live."

- The most mind-boggling: In 1944, computer-processing capacity measured in millions of instructions per second (MIPS) cost 732,681 lifetimes per MIPS. In 1997, a MIPS went for 27 minutes worth of labor.
- The most useful: In 1920, the median house cost 7.8 hours of work per square foot. This fell to 6.5 hours in 1956 and to 5.6 hours in 1996. "Plus, today's homes come equipped with many more amenities—from central heat and air-conditioning to a full range of kitchen appliances."
- The most factoidal: It takes less time to earn enough for a fast-food burger (9 minutes) than it takes to order it, find a table, and eat it.

Retirement planning: today's workers must make more decisions

Since 1986, defined contribution retirement plans, such as the 401(k), have been offered more commonly to private employees than have traditional defined benefits plans. According to a recent Federal Reserve Bank of New York staff report, *How Workers Use 401(k) Plans: The Participation, Contribution, and Withdrawal Decisions*, by William F. Bassett, Michael J. Fleming, and Anthony P. Rodriguez, this is part of a trend toward an increasingly responsible role for individual workers in retirement planning. They conclude, however, that "many either are not participating or are participating in a minor way." Fully a third of workers offered 401(k) plans decline to participate, they say. They find further that among workers with family incomes under $15,000 per year, almost two-thirds are not using the plans offered them.

Bassett, Fleming, and Rodriguez also find that of the nearly half of workers who report taking a lump-sum distribution from a retirement plan before retirement age, only 28 percent roll the funds into tax-qualified retirement accounts. Again, lower income workers are least likely to participate in the tax-qualified retirement option. Because their data source did not measure household assets or savings, they did not draw definitive conclusions about how well workers' retirement plans would support future consumption. They did conclude however, that their findings should "raise concern that many workers may not be adequately saving for their retirement years." □

To the Editor:

In July 1992, Kristina J. Shelley, in her article, "The future jobs of college graduates," stated that of the 28 million college graduates in the work force in 1990, 5.8 million were educationally under-utilized. She then projected that between 1990 and 2005, the number of college graduates would grow faster than the number of college-level jobs, with the result that 30 percent of those graduates would have to settle for a job below this level. As of early 1998, how accurate have these projections turned out to be?

[signed] Ed Meyer
Fairfield, Connecticut

Ms. Shelley replies:

The most recent year for which data are available to answer your questions concerning the job market for college graduates is 1996. In the projections that you have asked about, total employment was projected to increase from 122.6 million in 1990 to 147.2 million in 2005. The projected increase in employment of 24.6 million implies an average annual increase of 1.6 million. The actual number of jobs in 1996 was 132.3 million and reflected an average annual increase of 1.6 million from 1990 to 1996, virtually the same as was projected.

College-level jobs were projected to increase from 23.2 million to 32.3 million between 1990 and 2005. The projected increase of slightly more than 9 million implies growth averaging about 600,000 a year. We have estimated that the number of college-level jobs in 1996 was 27.4 million, which reflected an average annual growth of 700,000 jobs from 1990 to 1996. This growth was more than was projected and appears across most occupations that generally require a bachelor's degree or more education.

Data are not available to answer directly your question about the percent of college graduates who had to settle for noncollege-level jobs, but I am fairly sure that it is less than the 30 percent projected. Nevertheless, the number of college graduates who were employed in noncollege-level jobs did increase from 5.1 million in 1990 to 5.6 million in 1996. Although this is less than our projections indicated, labor market conditions were similar to those implied by the projections.

Our most recent projections of the job market for college graduates is presented in the summer 1998 issue of the *Occupational Outlook Quarterly*. It indicates a more favorable outlook than our 1990–2005 projections, but still implies that some college graduates will have to settle for noncollege-level jobs.

Building a strong economy

The Economics of the Construction Industry. By Gerald Finkel. Armonk, NY, M.E. Sharpe, Inc., 1997, 177 pp. $62.95, cloth; $21.95, paper.

The Economics of the Construction Industry is an overview of major economic aspects of the construction industry. The book explores topics ranging from the structure of the industry, popular economic thought and principles, and analytical views of productivity and unions. The author, Gerald Finkel, has hands-on experience in the construction industry due to an apprenticeship in the electrical trade. In addition, he possesses a Ph.D. in labor economics.

The book begins with an overview of the historical development of the construction market. What the book lacks in detail, it makes up for in the number of topics covered. Indeed, many of the chapters discuss subjects that could be books unto themselves. There are three main subjects addressed in this book: industry structure, statistical issues, and union topics.

In the first three chapters, Finkel conducts a broad-based tour of the framework supporting the industry. He argues that there are two main assertions that describe modern construction. One is that modern day builders face the same basic obstacles as ancient builders—namely issues dealing with variables of building design such as ventilation, structural support, and lighting. The march of technology will continue to shape the choice made by builders, and the author examines major materials used in building (wood, steel, concrete). The second issue is that major social and economic forces have shaped the construction industry. Developments in related industries, such as real estate and manufacturing, also affect the health of construction.

The construction industry is extremely fragmented, with enormous enterprises competing in the same markets as one-person operations. This immense segment of the economy, with more than 2 million businesses operating in 1992, is divided roughly into three sectors—private residential, private commercial, and public construction. Private residential construction, the author asserts, is the mainstay of the industry and is strongly linked with the overall health of the economy. Overall, this segment is relatively unstable and slow to respond to business cycle fluctuations. Private commercial construction is overwhelmingly contract work, as opposed to force account work (where a major company basically does its own building). Important issues facing this segment are sources of funding and building complexity. Public construction is subject to local, State, and Federal regulations, making this segment more complex in many instances. Wage regulation is one of the most important issues affecting public construction. All of these segments are open to union involvement, which often impacts the wage structure and job conditions. Finkel explores unions in greater detail later in the book.

Continuing with the industry overview, the author explores construction in respect to classical economic thought. The economic theories of Adam Smith, Karl Marx, and John Maynard Keynes are explored in respect to the construction industry, but no conclusion is drawn from the competing views.

Major statistical issues affecting the construction industry include data availability, productivity, labor market composition, wages, and construction investment. The book gives broad overviews of the basics of these subjects. Construction's contribution to the Nation's real gross domestic product is quickly addressed. It has comprised a significant but declining percentage over the years. The composition of the labor market has also varied over the years. In 1972, about 40 percent of building trade employees belonged to unions, compared with about 18 percent today. In addition, more women and minorities have become employed in the construction industry. Sexual and racial discrimination have been problems in the construction industry, and Finkel explores this subject briefly.

One of the largest issues faced by anyone attempting to analyze an entire industry—the availability of statistics—is a subject to which an entire chapter was devoted. Government data from the Department of Commerce and the Bureau of Labor Statistics are available, but often present comparability problems. There are also several private statistical agencies that produce data. Related to this is the measurement of productivity in the industry, and the author covers this issue in two lengthy chapters.

Measuring productivity in construction is inherently difficult, due to the labor-intensive, diverse nature of the industry. A major stumbling point is the issue of skill differentiation among workers. This creates measurement problems that would not exist if workers were interchangeable, as in manufacturing. In addition, the management differences between small and large-scale operations cloud the issue. For example, the pace of work assigned (time required per installation) becomes a determinant of profitability. To increase productivity, builders have opted for materials with lower installation labor requirements such as plastic pipe rather than copper pipe. There is much reliance today on prefabrication of certain parts (which limits the number of hours of workers on-site) making productivity measurement a challenge.

The presence of unions is an issue that has shaped virtually every direction and trend in the industry. Indeed, almost every chapter has some discussion of union activity. One issue in particular is of major debate: productivity in union versus nonunion shops. Several case studies are presented. The work of Steven Allen in the 1980s, which demonstrated the variations in productivity for different types of building activities is described in length. He used production function estimates and discovered a decline in productivity from 1968 to 1978. The conclusion is that increases in building activity of lower skill installations

(homes) lead to a reduction in union labor, which may be more skilled due to apprenticeships and journeyman programs. The demand for younger, inexperienced workers ultimately lowers output per worker.

An opposing view by David M. Gordon (1981) is presented that blames the lower productivity in the late 1960s and 1970s not on union versus nonunion firms, but economic events such as Vietnam, high government spending, oil price shocks, and inflation. A leveling off of wage growth in construction during this time and a rising cost of living resulted in a lower standard of living for construction workers. Finkel spends the remainder of the chapter exploring several other theories on productivity and goes into great detail on the difference between union and nonunion wages and output.

One of the issues that may eventually affect productivity is competition within the construction industry. The ways in which small and large companies compete among each other are explained, as is competition among the diversely skilled employees. Often, the issue of whether these employees are union or nonunion plays a role in their skill level and employability.

What factors impact the wages these workers earn? Mainstream economic thought states that a worker's wage is equal to his marginal revenue product. According to the author, the picture is more complex for the construction industry. Determination of a construction worker's wage is based usually on individual skill levels, union membership status, and locality. Wage bargaining is a central issue in the construction industry. Formal bargaining is usually conducted through unions and may result in a set wage per hour for a class of workers, where lump-sum payments and piecework are discouraged. Informal wage bargaining is also conducted frequently, and is usually an individual agreement with a particular employer. The author explores several related points such as wage legislation and union threats and strikes, as well as the application of classical economic thought to wage determination.

Although unions have historically played a leading role in the direction of the construction industry, their impact over time has lessened. More firms have become known as "split shop." This is a firm that works in both union and nonunion projects. Some unions seek to prohibit this practice in their collective bargaining agreements.

Unions have long played a central part in a construction worker's training and eventual skill level. Apprenticeship and journeyman programs have historically been popular and allow more experienced tradesmen to impart their knowledge to new workers. With the decline of union membership, construction is evolving into an open-shop industry, with new types of training programs. They include educational programs and certification classes conducted by building associations. A main problem with the old apprenticeship system was when skilled tradesmen would become loath to impart their knowledge, time, and effort to train less-skilled workers who might displace them. Unions attempt to take the threat away by protecting the skilled tradesman's job, thus allowing a continuous flow of knowledge.

The construction industry is important to the U.S. economy. Gerald Finkel's book is a good text for anyone interested in the construction industry's issues and dynamics in the labor market. Although many chapters serve as only general introductions to complex subjects, readers are provided with enough detail to increase their understanding of the industry. It is a good reference book for anyone who wishes to gain a historical perspective and know more about labor economics in the building industry.

—Jacqueline Warnke

Office of Employment and Unemployment Statistics
Bureau of Labor Statistics

Private pensions history

The Promise of Private Pensions: The First Hundred Years. By Steven A. Sass. Cambridge, MA, Harvard University Press, 1997, 321 pp.

While various periods in the history of the U.S. private pension system have been studied, Steven A. Sass provides the first thorough development of this economic institution from its humble beginnings as a railroad's welfare enhancement tool to its current decline as a source of retirement security for our aging population. Throughout the author's presentation, he ushers the reader through the changing incentives facing business and labor; the increased financial savvy of plan sponsors; and the government's concern over retirement income security, tax avoidance, and its accompanying regulations. Furthermore, he accomplishes this task while explaining the political, social, and economic climate at each stage of the private pension's development.

Sass presents and substantiates three separate explanations for the advent of the corporate use of pensions: promotion of career attachment for white-collar workers, benevolence to promote loyalty among blue-collar workers, and the reduction of the less productive, super-annuated workers of both classes. Each of these three managerial goals was used in the powerful railroad industry of the late 1800s and early 1900s and spread to other corporate structures soon thereafter.

The author clearly links the incentives behind the development of private pensions with the financial realities facing the use of pensions as the new, labor-management tool. These financial realities manifested themselves in the early 1920s and 1930s with the failure of pension plans and increased pessimism on the part of pensioners. Thus, parties became increasingly concerned about the appropriate method of guarantees in the pension benefit: a pay-as-you-go system or an actuarially justified funded account. With these concerns, the financial sector of our

economy became increasingly important in the pension movement. Insurance companies had been offering savings plans and quickly saw a market for themselves in the employer pension framework by managing employer plans and/or providing consulting services.

Public and private concern over pension funding and the maintenance of old-age income forced the private pension to become a public issue and led to the government's introduction of Federal funding standards and the Social Security system. Additionally, Sass presents a clear argument over the role of Federal tax legislation in the changing focus of private pensions. The tax advantages of private pensions to individuals resulted in an increase in the demand for these pensions, while Social Security reduced corporate pressure to provide basic retirement income security.

The labor movement's social and political role in the development of private and public retirement plans is woven throughout the text. Labor's initial belief that corporations used pensions as a means to suppress labor organizations resulted in the development of their own pension plans and their promotion of a Federal retirement plan. Although their view of employer pensions had softened over time, the final blow to labor's stance against employer pensions was the 1948 National Labor Relations Board's ruling that placed pension benefits as a subject of collective bargaining. Thus, pension benefits began to be viewed as deferred wages of the worker and not a gift from the employer.

While evidence of ineffective plan management and corporate abuse in pension plan funding has been well documented, the author presents a very intriguing tale of labor's role in the events leading up to the Employee Retirement Income Security Act of 1974 (ERISA). Teamsters leader Jimmy Hoffa's manipulation of pension assets and the United Mine Workers' movement of pension asset income into the union account are two examples of union abuses prior to ERISA.

The final chapter of the book presents the author's view on the outlook of the traditional private employer pension. His belief is that a decline in the career attachment framework and the weakening of labor unions, government, and large corporations are promoting the decline in private pensions, compelling younger Americans to place increased importance on financing their old-age security through personal savings. Whether or not these economic institutions follow the trend which the author suggests or that personal savings will replace public and/or private retirement plans remains to be seen. Nevertheless, the author's historical review of the incentives behind private pension development is fundamental to leading our way through the political, social, and economic battles currently brewing over income security for our aging population.

—Michelle W. Trawick

Assistant professor of economics
University of Wisconsin–Whitewater

Business decisionmaking

Business Decisions, Human Choices: Restoring the Partnership Between People and Their Organization. By Lloyd C. Williams. Westport, CT, Quorum Books, 1996, 208 pp., bibliography.

Since the early 1980s, business decisions have tended to reflect less and less the social and community values of the areas in which they are located. Instead, greed and excessive competition, manifested by downsizing, outsourcing, and off shoring, have replaced community values in business decisionmaking. Something is wrong when a key element of society does not support that society. Previously, business leaders had helped structure societal values. Now, by denigrating values of the society, business organizations endanger the mental health of their own organizations and their workers. In order to provide healthier environments for workers and the organizations themselves, businesses need to use a more holistic approach in examining values and making decisions. So says Lloyd C. Williams in his book *Business Decisions, Human Choices: Restoring the Partnership Between People and Their Organization.*

The book examines the interaction among business organizations, workers, and the community in which both exist. The author considers a number of related topics, including organizational psychosis as reflected in decisionmaking, organizational depression and its impact on individual worker dysfunction, and the transformation of an organization from a hierarchical closed system to a more development-oriented open system. While laborious, the book makes useful points about links between organizational decisionmaking and worker behavior. Although the book provides a possible answer to the problem it describes, this is certainly not a how-to book for business transformation.

Williams describes the development of organizational mental health problems and the impact of this organizational ill health on workers' behavior. He suggests that in its decisionmaking processes, business has lost the balance between its responsibility to maximize value and its responsibility to workers and communities. Business has failed to embrace human and emotional factors as components of decisionmaking; to restore health, these factors must once again become part of the organization.

To the extent that business leaders are overfocused on competition and profits to the exclusion of community values, organizational psychosis develops. This psychosis manifests itself in workers as loss of self-direction, lack of clarity in roles, withdrawal, sick-building complaints, and violence. Thus, when business decisions do not appropriately reflect human values, major organizational problems result. So for the organization's sake, leaders must find a way to include these values in the decisionmaking process.

How does one transform one's business to better reflect these critical values and still pursue profitability? By embrac-

ing a new human process paradigm which balances the needs of business with the values of the workers and the community. This paradigm is a fluid, growth-oriented system that both fosters worker development and continues to develop itself. It consists of developmental processes for both the organization and for the workers, including scans of the business environment with consideration for values and a commitment for inclusion in decisionmaking. This model recognizes the need for personal development of the organization's workers and makes provision for it.

The payoff for this transformation is an organizing system with a more enhanced means of business development, one that includes all of the members of the organization. The company is thus more aware of the choices available to it, so it is more effective framing policies and strategies with attention to human and community values. With everyone in the organization in a constant state of development, the organization itself benefits and prospers.

To the critical reader, this sounds too good to be true. Further, while the problems associated with the old organizational system are laid out in detail, the solution is somewhat vague and difficult to follow. As well, there is only one example of the successfully transforming organization cited in the book. Can one read the book and implement the system? In the opinion of this reader, no. Thus, while the book makes an interesting argument for change, the answer provided seems incomplete.

—Stanley W. Suchman
Bureau of Labor Statistics
Kansas City region

LABSTAT Available via World Wide Web

LABSTAT, the Bureau of Labor Statistics public database, provides current and historical data for many BLS surveys as well as numerous news releases.

LABSTAT Public Access has introduced a new production Internet service over the World Wide Web. BLS and regional offices programs are described using hypertext pages. Access to LABSTAT data and news releases is provided by a link to the BLS gopher server. The URL is:

http://stats.bls.gov/blshome.html

If you have questions or comments regarding the LABSTAT system on the Internet, address e-mail to:

labstat.helpdesk@bls.gov

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This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force; employment; unemployment; labor compensation; consumer, producer, and international prices; productivity; international comparisons; and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described; key definitions are given; notes on the data are set forth; and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted data appear in tables 1–14, 16–17, 39, and 43. Seasonally adjusted labor force data in tables 1 and 4–9 were revised in the February 1998 issue of the *Review*. Seasonally adjusted establishment survey data shown in tables 1, 12–14 and 16–17 were revised in the July 1997 *Review* and reflect the experience through March 1997. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 45 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and quarter-to-quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All-Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the "real" earnings shown in table 14—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1982 = 100, the hourly rate expressed in 1982 dollars is $2 ($3/150 x 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1982" dollars.

Sources of information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Definitions of each series and notes on the data are contained in later sections of these Notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2490. Users also may wish to consult *Major Programs of the Bureau of Labor Statistics*, Report 919. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule appearing on the back cover of this issue.

More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in the Bureau's monthly publication, *Employment and Earnings*. Historical unadjusted and seasonally adjusted data from the household survey are available on the Internet:

http://stats.bls.gov/cgi-bin/dsrv?lf

Historically comparable unadjusted and seasonally adjusted data from the establishment survey also are available on the Internet:

http://stats.bls.gov/cgi-bin/dsrv?ee

Additional information on labor force data for sub-States are provided in the BLS annual report, *Geographic Profile of Employment and Unemployment.*

For a comprehensive discussion of the Employment Cost Index, see *Employment Cost Indexes and Levels, 1975–95*, BLS Bulletin 2466. The most recent data from the Employee Benefits Survey appear in the following Bureau of Labor Statistics bulletins: *Employee Benefits in Medium and Large Firms; Employee Benefits in Small Private Establishments;* and *Employee Benefits in State and Local Governments.*

More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report* and *Producer Price Indexes*. For an overview of the 1998 revision of the CPI, see the December 1996 issue of the *Monthly Labor Review*. Additional data on international prices appear in monthly news releases.

For a listing of available industry productivity indexes and their components, see *Productivity Measures for Selected Industries*, BLS Bulletin 2491.

For additional information on international comparisons data, see *International Comparisons of Unemployment*, BLS Bulletin 1979.

Detailed data on the occupational injury and illness series are published in *Occupational Injuries and Illnesses in the United States, by Industry*, a BLS annual bulletin.

Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.
n.e.s. = not elsewhere specified.
p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
r = revised. Generally, this revision reflects the availability of later data, but also may reflect other adjustments.

Comparative Indicators

(Tables 1–3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2.

Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; overall prices by stage of processing; and overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data.

Employment and Unemployment Data

(Tables 1; 4–20)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 50,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all those who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff are also counted among the unemployed. **The unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population. Persons **not in the labor force** are those not classified as employed or unemployed. This group includes discouraged workers, defined as persons who want and are available for a job and who have looked for work sometime in the the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify. The **civilian noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy. The **civilian labor force participation** rate is the proportion of the civilian noninstitutional population that is in the labor force. The **employment-population ratio** is employment as a percent of the civilian noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the intercensal years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appears in the Explanatory Notes of *Employment and Earnings*.

Labor force data in tables 1 and 4–9 are seasonally adjusted. Since January 1980, national labor force data have been seasonally adjusted with a procedure called X-11 ARIMA which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in the X-11 *ARIMA Seasonal Adjustment Method*, by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983).

At the end of each calendar year, historical seasonally adjusted data usually are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. Because of the redesign of the survey, seasonally adjusted data back to 1994 usually are revised. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period, but no revisions are made in the historical data.

Revisions to household data

Data beginning in 1998 are not strictly comparable with data for 1997 and earlier years because of the introduction of new composite estimation procedures and updated population controls. Additional information on these revisions appears in the February 1998 issue of *Employment and Earnings*.

FOR ADDITIONAL INFORMATION on national household survey data, contact the Division of Labor Force Statistics: (202) 606–6378.

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by about 390,000 establishments representing all industries except agriculture. Industries are classified in accordance with the 1987 *Standard Industrial Classification (SIC) Manual*. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th day of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 11–16 include production workers in manufacturing and mining; construction

workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index** represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. Data are centered within the span. Table 17 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employment (called "benchmarks"). The latest adjustment, which incorporated March 1996 benchmarks, was made with the release of May 1997 data, published in the July 1997 issue of the *Review*. Coincident with the benchmark adjustment, seasonally adjusted data were revised back to 1988 to reflect updated seasonal factors and seasonal adjustment procedures. Unadjusted data from April 1996 forward and seasonally adjusted data from January 1993 forward are subject to revision in future benchmarks.

Revisions in State data (table 11) occurred with the publication of January 1998 data.

Beginning in June 1996, the BLS uses the X-12 ARIMA methodology to seasonally adjust establishment survey data. This procedure, developed by the Bureau of the Census, controls for the effect of varying survey intervals (also known as the 4- versus 5-week effect), thereby providing improved measurement of over-the-month changes and underlying economic trends. Revisions of data, usually for the most recent 5-year period, are made once a year coincident with the benchmark revisions.

In the establishment survey, estimates for the most recent 2 months are based on incomplete returns and are published as preliminary in the tables (12–17 in the *Review*). When all returns have been received, the estimates are revised and published as "final" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and as final in March.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20.

FOR ADDITIONAL INFORMATION on establishment survey data, contact the Division of Monthly Industry Employment Statistics: (202) 606–6555.

Unemployment data by State

Description of the series

Data presented in this section are obtained from the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions, and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act. Seasonally adjusted unemployment rates are presented in table 10. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for all States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates are revised to new population controls, usually with publication of January estimates, and benchmarked to annual average CPS levels.

FOR ADDITIONAL INFORMATION on data in this series, call (202) 606–6392 (table 10) or (202) 606–6589 (table 11).

Compensation and Wage Data

(Tables 1–3; 21–27)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 4,400 private nonfarm establishments providing about 23,000 occupational observations and 1,000 State and local government establishments providing 6,000 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the civilian and private indexes and the index for State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensa-

tion, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series of changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981=100) are available on the Internet:

http://stats.bls.gov/ecthome.htm

FOR ADDITIONAL INFORMATION on the Employment Cost Index, contact the Office of Compensation Levels and Trends: (202) 606–6199.

Employee Benefits Survey

Description of the series

Employee benefits data are obtained from the Employee Benefits Survey, an annual survey of the incidence and provisions of selected benefits provided by employers. The survey collects data from a sample of approximately 6,000 private sector and State and local government establishments. The data are presented as a percentage of employees who participate in a certain benefit, or as an average benefit provision (for example, the average number of paid holidays provided to employees per year). Selected data from the survey are presented in table 25 for medium and large private establishments and in table 26 for small private establishments and State and local government.

The survey covers paid leave benefits such as lunch and rest periods, holidays and vacations, and personal, funeral, jury duty, military, parental, and sick leave; sickness and accident, long-term disability, and life insurance; medical, dental, and vision care plans; defined benefit and defined contribution plans; flexible benefits plans; reimbursement accounts; and unpaid parental leave.

Also, data are tabulated on the incidence of several other benefits, such as severance pay, child-care assistance, wellness programs, and employee assistance programs.

Definitions

Employer-provided benefits are benefits that are financed either wholly or partly by the employer. They may be sponsored by a union or other third party, as long as there is some employer financing. However, some benefits that are fully paid for by the employee also are included. For example, long-term care insurance and postretirement life insurance paid entirely by the employee are included because the guarantee of insurability and availability at group premium rates are considered a benefit.

Participants are workers who are covered by a benefit, whether or not they use that benefit. If the benefit plan is financed wholly by employers and requires employees to complete a minimum length of service for eligibility, the workers are considered participants whether or not they have met the requirement. If workers are required to contribute towards the cost of a plan, they are considered participants only if they elect the plan and agree to make the required contributions.

Defined benefit pension plans use predetermined formulas to calculate a retirement benefit, and obligate the employer to provide those benefits. Benefits are generally based on salary, years of service, or both.

Defined contribution plans generally specify the level of employer and employee contributions to a plan, but not the formula for determining eventual benefits. Instead, individual accounts are set up for participants, and benefits are based on amounts credited to these accounts.

Tax-deferred savings plans are a type of defined contribution plan that allow participants to contribute a portion of their salary to an employer-sponsored plan and defer income taxes until withdrawal.

Flexible benefit plans allow employees to choose among several benefits, such as life insurance, medical care, and vacation days, and among several levels of care within a given benefit.

Notes on the data

Surveys of employees in medium and large establishments conducted over the 1979–86 period included establishments that employed at least 50, 100, or 250 workers, depending on the industry (most service industries were excluded). The survey conducted in 1987 covered only State and local governments with 50 or more employees. The surveys conducted in 1988 and 1989 included medium and large establishments with 100 workers or more in private industries. All surveys conducted over the 1979–89 period excluded establishments in Alaska and Hawaii, as well as part-time employees.

Beginning in 1990, surveys of State and local governments and small establishments are conducted in even-numbered years and surveys of medium and large establishments are conducted in odd-numbered years. The small establishment survey includes all private nonfarm establishments with fewer than 100 workers, while the State and local government survey includes all governments, regardless of the number of workers. All three surveys include full- and part-time workers, and workers in all 50 States and the District of Columbia.

FOR ADDITIONAL INFORMATION on the Employee Benefits Survey, contact the Office of Compensation Levels and Trends (202) 606–6222 or the Internet:

http://stats.bls.gov/ebshome.htm

Work stoppages

Description of the series

Data on work stoppages measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of time lost because of stoppage. These data are presented in table 27.

Data are largely from newspaper accounts and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of strikes and lockouts involving 1,000 work-

ers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of workdays lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

FOR ADDITIONAL INFORMATION on work stoppages data, contact the Office of Compensation Levels and Trends: (202) 606–6282, or the Internet:

http://stats.bls.gov//lmrhome.htm

Price Data

(Tables 2; 28–38)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period—1982 = 100 for many Producer Price Indexes, 1982–84 = 100 for many Consumer Price Indexes (unless otherwise noted), and 1990 = 100 for International Price Indexes.

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all-urban consumer index (CPI-U), introduced in 1978, is representative of the 1993–95 buying habits of about 87 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 23,000 retail establishments and 5,800 housing units in 87 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 14 major urban centers are presented in table 29. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are meaured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of home-ownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 data.

FOR ADDITIONAL INFORMATION on consumer prices, contact the Division of Consumer Prices and Price Indexes: (202) 606–7000.

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 80,000 quotations per month, selected to represent the movement of prices of all commodities produced in the manufacturing; agriculture, forestry, and fishing; mining; and gas and electricity and public utilities sectors. The stage-of-processing structure of PPI organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1992, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1987. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

FOR ADDITIONAL INFORMATION on producer prices, contact the Division of Industrial Prices and Price Indexes: (202) 606–7705.

International Price Indexes

Description of the series

The **International Price Program** produces monthly and quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts; it includes corporations, businesses, and individuals, but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected primarily by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports

and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first week of the month. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined according to the five-digit level of detail for the Bureau of Economic Analysis End-use Classification (SITC), and the four-digit level of detail for the Harmonized System. Aggregate import indexes by country or region of origin are also available.

BLS publishes indexes for selected categories of internationally traded services, calculated on an international basis and on a balance-of-payments basis.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each harmonized group and are then aggregated to the higher level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1990.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f.(costs, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

FOR ADDITIONAL INFORMATION on international prices, contact the Division of International Prices: (202) 606–7155.

Productivity Data

(Tables 2; 39–42)

Business sector and major sectors

Description of the series

The productivity measures relate real output to real input. As such, they encompass a family of measures which include single-factor input measures, such as output per unit of labor input (output per hour) or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the quantity of goods and services produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the quantity of goods and services produced per unit of capital services input. **Multifactor productivity** is the quantity of goods and services produced per combined unit of labor and capital inputs.

Compensation per hour is total compensation divided by hours at work. Total compensation equals the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, plus an estimate of these payments for the self-employed (except for nonfinancial corporations in which there are no self-employed). **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output.

Unit nonlabor costs contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

Hours of all persons are the total hours at work of payroll workers, self-employed persons, and unpaid family workers.

Labor inputs are hours of all persons adjusted for the effects of changes in the education and experience of the labor force.

Capital services are the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input with weights which represent each component's share of total output. The indexes for capital services, labor inputs, and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Business sector output is an annually-weighted index constructed by excluding from real gross domestic product (GDP) the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Nonfarm business also excludes farming. Private business and private nonfarm business further exclude government enterprises. The measures are supplied by the U.S. Department of Commerce's Bureau of Economic Analysis. Annual estimates of manufacturing sectoral output are produced by the Bureau of Labor Statistics. Quarterly manufacturing output indexes from the Federal Reserve Board are adjusted to these annual output measures by the BLS. Compensation data are developed from data of the Bureau of Economic Analysis and the Bureau of Labor Statistics. Hours data are developed from data of the Bureau of Labor Statistics.

The productivity and associated cost measures in tables 39–42 describe the relationship between output in real terms and the labor and capital inputs involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input.

Although these measures relate output to

hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; shifts in the composition of the labor force; capital investment; level of output; changes in the utilization of capacity, energy, material, and research and development; the organization of production; managerial skill; and characteristics and efforts of the work force.

FOR ADDITIONAL INFORMATION on this productivity series, contact the Division of Productivity Research: (202) 606–5606.

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the three- and four-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per employee hour is derived by dividing an index of industry output by an index of aggregate hours of all employees. Output indexes are based on quantifiable units of products or services, or both, combined with value-share weights. Whenever possible, physical quantities are used as the unit of measurement for output. If quantity data are not available for a given industry, data on the constant-dollar value of production are used.

The **labor input** series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Reserve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including self-employed) are constructed.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Industry Productivity Studies: (202) 606–5618.

International Comparisons

(Tables 43–45)

Labor force and unemployment

Description of the series

Tables 43 and 44 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on Employment and Unemployment Data: Household survey data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and older. Therefore, the adjusted statistics relate to the population aged 16 and older in France, Sweden, and the United Kingdom; 15 and older in Canada, Australia, Japan, Germany, Italy from 1993 onward, and the Netherlands; and 14 and older in Italy prior to 1993. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their jobs are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries, therefore, are subject to revision whenever data from more current labor force surveys become available.

There are breaks in the data series for the United States (1990, 1994), France (1992), Italy (1991, 1993), the Netherlands (1988), and Sweden (1987).

For the United States, the break in series reflects a major redesign of the labor force survey questionnaire and collection methodology introduced in January 1994. Revised population estimates based on the 1990 census, adjusted for the estimated undercount, also were incorporated. In 1996, previously published data for the 1990–93 period were revised to reflect the 1990 census-based population controls, adjusted for the undercount. Therefore, data for 1994 onward are not directly comparable with data for 1993 and earlier years because of the redesign, and data for 1990 onward are not directly comparable with data for 1989 and earlier years because of the introduction of the 1990 census-based population controls, adjusted for the undercount. See the Notes section on Employment and Unemployment Data of this *Review*.

For France, the 1992 break reflects the substitution of standardized European Union Statistical Office (EUROSTAT) unemployment statistics for the unemployment data estimated according to the International Labor Office (ILO) definition and published in the Organization for Economic Cooperation and Development (OECD) annual yearbook and quarterly update. This change was made because the EUROSTAT data are more up-to-date than the OECD figures. Also, since 1992, the EUROSTAT definitions are closer to the U.S. definitions than they were in prior years. The impact of this revision was to lower the unemployment rate by 0.1 percentage point in 1992 and 1993, by 0.4 percentage point in 1994, and 0.6 percentage point in 1995.

For Italy, the 1991 break reflects a revision in the method of weighting sample data. The impact was to increase the unemployment rate by approximately 0.3 percentage point, from 6.6 to 6.9 percent in 1991.

In October 1992, the survey methodology was revised and the definition of unemployment was changed to include only those who were actively looking for a job within the 30 days preceding the survey and who

were available for work. In addition, the lower age limit for the labor force was raised from 14 to 15 years. (Prior to these changes, BLS adjusted Italy's published unemployment rate downward by excluding from the unemployed those persons who had not actively sought work in the past 30 days.) The break in the series also reflects the incorporation of the 1991 population census results. The impact of these changes was to raise Italy's adjusted unemployment rate by approximately 1.2 percentage points, from 8.3 to 9.5 percent in fourth-quarter 1992. These changes did not affect employment significantly, except in 1993. Estimates by the Italian Statistical Office indicate that employment declined by about 3 percent in 1993, rather than the nearly 4 percent indicated by the data shown in table 44. This difference is attributable mainly to the incorporation of the 1991 population benchmarks in the 1993 data. Data for earlier years have not been adjusted to incorporate the 1991 census results.

For the Netherlands, a new survey questionnaire was introduced in 1992 that allowed for a closer application of ILO guidelines. EUROSTAT has revised the Dutch series back to 1988 based on the 1992 changes. The 1988 revised unemployment rate is 7.6 percent; the previous estimate for the same year was 9.3 percent.

There have been two breaks in series in the Swedish labor force survey, in 1987 and 1993. Adjustments have been made for the 1993 break back to 1987. In 1987, a new questionnaire was introduced. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes lowered Sweden's 1987 unemployment rate by 0.4 percentage point, from 2.3 to 1.9 percent. In 1993, the measurement period for the labor force survey was changed to represent all 52 weeks of the year rather than one week each month and a new adjustment for population totals was introduced. The impact was to raise the unemployment rate by approximately 0.5 percentage point, from 7.6 to 8.1 percent. Statistics Sweden revised its labor force survey data for 1987–92 to take into account the break in 1993. The adjustment raised the Swedish unemployment rate by 0.2 percentage point in 1987 and gradually rose to 0.5 percentage point in 1992.

Beginning with 1987, BLS has adjusted the Swedish data to classify students who also sought work as unemployed. The impact of this change was to increase the adjusted unemployment rate by 0.1 percentage point in 1987 and by 1.8 percentage points in 1994, when unemployment was higher. By 1994, the adjusted unemployment rate had risen from 7.8 to 9.6 percent due to the adjustment to include students.

The net effect of the 1987 and 1993 changes and the BLS adjustment for students seeking work lowered Sweden's 1987 unemployment rate from 2.3 to 2.2 percent.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Manufacturing productivity and labor costs

Description of the series

Table 45 presents comparative indexes of manufacturing labor productivity (output per hour), output, total hours, compensation per hour, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are trend comparisons—that is, series that measure changes over time—rather than level comparisons. There are greater technical problems in comparing the levels of manufacturing output among countries.

BLS constructs the comparative indexes from three basic aggregate measures—output, total labor hours, and total compensation. The hours and compensation measures refer to all employed persons (wage and salary earners plus self-employed persons and unpaid family workers) in the United States, Canada, Japan, France, Germany, Norway, and Sweden, and to all employees (wage and salary earners) in the other countries.

Definitions

Output, in general, refers to value added in manufacturing from the national accounts of each country. However, the output series for Japan prior to 1970 is an index of industrial production, and the national accounts measures for the United Kingdom are essentially identical to their indexes of industrial production. While methods of deriving national accounts measures differ from country to country, BLS has reviewed these methods and determined that the series are sufficiently comparable for measuring comparative trends in productivity and unit labor costs.

The 1977–94 output data for the United States are the gross product originating (value added) measures prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce. Comparable manufacturing output data currently are not available prior to 1977. The 1994–95 percent changes in manufacturing output are based on the trend shown by the industrial production index published by the U.S. Federal Reserve Board for the manufacturing sector.

U.S. gross product originating is a chain-type annual-weighted series. (For more information on the U.S. measure, see Robert E. Yuskavage, "Improved Estimates of Gross Product by Industry, 1959–94," *Survey of Current Business*, August 1996, pp. 133–55.) The Japanese value added series is based upon one set of fixed price weights for the years 1970 through 1996. Output series for the other foreign economies also employ fixed price weights, but the weights are updated periodically (for example, every 5 or 10 years).

To preserve the comparability of the U.S. measures with those for other economies, BLS uses gross product originating in manufacturing for the United States for these comparative measures. The gross product originating series differs from the manufacturing output series that BLS publishes in its news releases on quarterly measures of U.S. productivity and costs (and that underlies the measures that appear in tables 39 and 41 in this section). The quarterly measures are on a "sectoral output" basis, rather than a value-added basis. Sectoral output is gross output less intrasector transactions.

Total labor hours refers to hours worked in all countries. The measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected to the Ministry of Labor for use with the national accounts employment figures. For the other countries, BLS constructs its own estimates of average hours.

Denmark has not published estimates of average hours for 1994–96; therefore, the BLS measure of labor input for Denmark ends in 1993.

Total compensation (labor cost) includes all payments in cash or in-kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. The measures are from the national accounts of each country, except those for Belgium, which are developed by BLS using statistics on employment, average hours, and hourly compensation. For France and Sweden, compensation is increased to account for other significant taxes on payroll or employment. For the United Kingdom, compensation is reduced between 1967 and 1991 to account for employment-related subsidies. Self-employed workers are included in the all-employed-persons measures by assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

In general, the measures relate to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (for all years) and Italy (beginning 1970) refer to mining and manufacturing less energy-related products, and the measures for Denmark include mining and exclude manufacturing handicrafts from 1960 to 1966.

The measures for recent years may be based on current indicators of manufacturing output (such as industrial production indexes), employment, average hours, and hourly compensation until national accounts and other statistics used for the long-term measures become available.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Occupational Injury and Illness Data

(Table 46–47)

Survey of Occupational Injuries and Illnesses

Description of the series

The Survey of Occupational Injuries and Illnesses collects data from employers about their workers' job-related nonfatal injuries and illnesses. The information that employers provide is based on records that they maintain under the Occupational Safety and Health Act of 1970. Self-employed individuals, farms with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies are excluded from the survey.

The survey is a Federal-State cooperative program with an independent sample selected for each participating State. A stratified random sample with a Neyman allocation is selected to represent all private industries in the State. The survey is stratified by Standard Industrial Classification and size of employment.

Definitions

Under the Occupational Safety and Health Act, employers maintain records of nonfatal work-related injuries and illnesses that involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Occupational injury is any injury such as a cut, fracture, sprain, or amputation that results from a work-related event or a single, instantaneous exposure in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday injuries and illnesses are cases that involve days away from work, or days of restricted work activity, or both.

Lost workdays include the number of workdays (consecutive or not) on which the employee was either away from work or at work in some restricted capacity, or both, because of an occupational injury or illness. BLS measures of the number and incidence rate of lost workdays were discontinued beginning with the 1993 survey. The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked, such as a Federal holiday, even though able to work.

Incidence rates are computed as the number of injuries and/or illnesses or lost work days per 100 full-time workers.

Notes on the data

The definitions of occupational injuries and illnesses are from *Recordkeeping Guidelines for Occupational Injuries and Illnesses* (U.S. Department of Labor, Bureau of Labor Statistics, September 1986).

Estimates are made for industries and employment size classes for total recordable cases, lost workday cases, days away from work cases, and nonfatal cases without lost workdays. These data also are shown separately for injuries. Illness data are available for seven categories: occupational skin diseases or disorders, dust diseases of the lungs, respiratory conditions due to toxic agents, poisoning (systemic effects of toxic agents), disorders due to physical agents (other than toxic materials), disorders associated with repeated trauma, and all other occupational illnesses.

The survey continues to measure the number of new work-related illness cases which are recognized, diagnosed, and reported during the year. Some conditions, for example, long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized and reported. These long-term latent illnesses are believed to be understated in the survey's illness measure. In contrast, the overwhelming majority of the reported new illnesses are those which are easier to directly relate to workplace activity (for example, contact dermatitis and carpal tunnel syndrome).

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses per 100 equivalent full-time workers. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Full detail on the available measures is presented in the annual bulletin, *Occupational Injuries and Illnesses: Counts, Rates, and Characteristics.*

Comparable data for more than 40 States and territories are available from the BLS Office of Safety, Health and Working Conditions. Many of these States publish data on State and local government employees in addition to private industry data.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration. Data from these organizations are included in both the national and State data published annually.

With the 1992 survey, BLS began publishing details on serious, nonfatal incidents resulting in days away from work. Included are some major characteristics of the injured and ill workers, such as occupation, age, gender, race, and length of service, as well as the circumstances of their injuries and illnesses (nature of the disabling condition, part of body affected, event and exposure, and the source directly producing the condition). In general, these data are available nationwide for detailed industries and for individual States at more aggregated industry levels.

FOR ADDITIONAL INFORMATION on occupational injuries and illnesses, contact the Office of Occupational Safety, Health and Working Conditions at (202) 606–6180, or access the Internet at:
http://www.bls.gov/oshhome.htm

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries compiles a complete roster of fatal job-related injuries, including detailed data about the fatally injured workers and the fatal events. The program collects and cross checks fatality information from multiple sources, including death certificates, State and Federal workers' compensation reports, Occupational Safety and Health Administration and Mine Safety and Health Administration records, medical examiner and autopsy reports, media accounts, State motor vehicle fatality records, and follow-up questionnaires to employers.

In addition to private wage and salary workers, the self-employed, family members, and Federal, State, and local government workers are covered by the program. Institutionalized persons, such as prison inmates, are excluded. To be included in the

fatality census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job.

Definition

A fatal work injury is any intentional or unintentional wound or damage to the body resulting in death from acute exposure to energy, such as heat or electricity or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event or incident or series of events within a single workday or shift. Fatalities that occur during a person's commute to or from work are excluded from the census, as well as work-related illnesses, which can be difficult to identify due to long latency periods.

Notes on the data

Twenty-eight data elements are collected, coded, and tabulated in the fatality program, including information about the fatally injured worker, the fatal incident, and the machinery or equipment involved. Summary worker demographic data and event characteristics are included in a national news release that is available about 8 months after the end of the reference year. The Census of Fatal Occupational Injuries was initiated in 1992 as a joint Federal-State effort. Most States issue summary information at the time of the national news release.

FOR ADDITIONAL INFORMATION on the Census of Fatal Occupational Injuries contact the BLS Office of Safety, Health, and Working Conditions at (202) 606–6175, or the Internet at:

http://www.bls.gov/oshhome.htm

1. Labor market indicators

Selected indicators	1996	1997	1996				1997			
			I	II	III	IV	I	II	III	IV
Employment data										
Employment status of the civilian noninstitutionalized population (household survey):[1]										
Labor force participation rate	66.8	67.1	66.6	66.7	66.8	67.0	67.1	67.1	67.1	67.1
Employment-population ratio	63.2	63.8	62.9	63.1	63.3	63.4	63.6	63.8	63.8	64.0
Unemployment rate	5.4	4.9	5.6	5.4	5.3	5.3	5.3	4.9	4.9	4.7
Men	5.4	4.9	5.6	5.5	5.3	5.2	5.2	4.8	4.8	4.7
16 to 24 years	12.6	11.8	13.0	12.7	12.4	12.3	12.4	11.4	11.8	11.6
25 years and over	4.1	3.6	4.3	4.1	3.9	3.9	3.9	3.6	3.5	3.4
Women	5.4	5.0	5.5	5.4	5.3	5.4	5.4	5.1	5.0	4.7
16 to 24 years	11.3	10.7	11.8	11.0	11.1	11.4	11.5	10.9	10.5	10.1
25 years and over	4.3	3.9	4.3	4.3	4.2	4.3	4.2	3.9	3.9	3.6
Employment, nonfarm (payroll data), in thousands:[1]										
Total	119,523	122,259	118,471	119,248	119,898	120,452	121,138	121,854	122,575	123,487
Private sector	100,076	102,605	99,111	99,831	100,392	100,953	101,598	102,259	102,829	103,726
Goods-producing	24,431	24,739	24,336	24,428	24,447	24,509	24,635	24,694	24,750	24,899
Manufacturing	18,457	18,537	18,473	18,467	18,443	18,444	18,476	18,504	18,541	18,633
Service-producing	95,092	97,520	94,135	94,821	95,451	95,943	96,504	97,159	97,825	98,588
Average hours:										
Private sector	34.4	34.6	34.2	34.4	34.5	34.5	34.7	34.5	34.5	34.6
Manufacturing	41.6	42.0	40.9	41.6	41.7	41.8	41.9	42.0	41.8	42.1
Overtime	4.5	4.8	4.3	4.5	4.5	4.6	4.8	4.8	4.7	4.9
Employment Cost Index[2]										
Percent change in the ECI, compensation:										
All workers (excluding farm, household and Federal workers)	2.9	3.3	.9	.7	.8	.5	.8	.6	1.0	.8
Private industry workers	3.1	3.4	.9	.9	.6	.6	.8	.8	.8	.9
Goods-producing[3]	2.8	2.4	.7	.9	.6	.6	.4	1.0	.7	.4
Service-producing[3]	3.2	3.9	1.1	.8	.7	.5	1.1	.7	1.0	1.1
State and local government workers	2.6	2.3	.5	.2	1.3	.6	.4	.1	1.3	.5
Workers by bargaining status (private industry):										
Union	2.4	2.1	.6	.9	.3	.5	.2	.6	1.1	.2
Nonunion	3.1	3.8	.9	.8	.8	.5	1.1	.8	.8	1.0

[1] Quarterly data seasonally adjusted.

[2] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter.

[3] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1996	1997	1996				1997			
			I	II	III	IV	I	II	III	IV
Compensation data[1,2]										
Employment Cost Index—compensation (wages, salaries, benefits):										
Civilian nonfarm	2.9	3.3	0.9	0.7	0.8	0.5	0.8	0.6	1.0	0.8
Private nonfarm	3.1	3.4	.9	.9	.6	.6	.8	.8	.8	.9
Employment Cost Index—wages and salaries:										
Civilian nonfarm	3.3	3.8	1.0	.8	.9	.6	.9	.7	1.2	.9
Private nonfarm	3.4	3.9	1.1	1.0	.7	.6	1.0	.9	1.0	1.0
Price data[1]										
Consumer Price Index (All Urban Consumers): All Items	3.3	1.7	1.4	.6	.7	.5	.9	.2	.6	.1
Producer Price Index:										
Finished goods	2.8	−1.2	.8	1.2	.1	.7	−.5	−.4	.2	−.1
Finished consumer goods	3.6	−1.4	1.0	1.6	.3	.6	−.6	−.2	.4	−.8
Capital equipment	.4	−.5	.1	−.1	−.7	1.0	.1	−.5	−.7	.6
Intermediate materials, supplies, and components	.7	−.8	−.2	1.0	.4	−.6	−.3	.1	.2	−.8
Crude materials	14.7	−11.7	3.8	3.0	−.4	7.7	−11.5	−.4	1.3	−1.0
Productivity data[3]										
Output per hour of all persons:										
Business sector	2.0	1.9	3.1	3.1	−.7	2.0	1.6	2.2	3.5	1.8
Nonfarm business sector	1.9	1.7	2.8	2.9	−.7	1.9	1.1	2.3	3.6	1.6
Nonfinancial corporations[4]	3.1	–	2.4	4.1	2.7	2.1	1.7	2.4	6.3	–

[1] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted, and the price data are not compounded.

[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

[4] Output per hour of all employees.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ending—					
	1996		1997				1996		1997			
	III	IV	I	II	III	IV	III	IV	I	II	III	IV
Average hourly compensation:[1]												
All persons, business sector	3.6	3.4	4.1	3.1	4.2	5.5	4.2	4.0	4.1	3.6	3.7	4.2
All persons, nonfarm business sector	3.3	3.4	4.3	3.2	3.8	5.2	4.0	3.9	4.0	3.5	3.7	4.1
Employment Cost Index—compensation:												
Civilian nonfarm[2]	.8	.5	.8	.6	1.0	.8	2.8	2.9	2.9	2.8	3.0	3.3
Private nonfarm	.6	.6	.8	.8	.8	.9	2.9	3.1	3.0	2.9	3.2	3.4
Union	.3	.5	.2	.6	1.1	.2	2.6	2.4	1.9	1.6	2.4	2.1
Nonunion	.8	.5	1.1	.8	.8	1.0	2.9	3.1	3.2	3.2	3.2	3.8
State and local governments	1.3	.6	.4	.1	1.3	.5	2.5	2.6	2.5	2.4	2.4	2.3
Employment Cost Index—wages and salaries:												
Civilian nonfarm[2]	.9	.6	.9	.7	1.2	.9	3.2	3.3	3.3	3.2	3.5	3.8
Private nonfarm	.7	.6	1.0	.9	1.0	1.0	3.3	3.4	3.4	3.3	3.6	3.9
Union	.5	.5	.5	.7	1.1	.5	2.7	2.6	2.6	2.2	2.8	2.8
Nonunion	.8	.6	1.1	.9	1.0	1.1	3.5	3.6	3.4	3.5	3.7	4.2
State and local governments	1.6	.6	.4	.1	1.6	.6	2.8	2.8	2.8	2.7	2.7	2.7

[1] Seasonally adjusted. "Quarterly average" is percent change from a quarter ago, at an annual rate.

[2] Excludes Federal and household workers.

4. Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
TOTAL															
Civilian noninstitutional population[1]	200,591	203,133	202,388	202,513	202,674	202,832	203,000	203,166	203,364	203,570	203,767	203,941	204,098	204,238	204,400
Civilian labor force	133,943	136,297	135,689	136,115	136,043	136,060	136,206	136,294	136,404	136,439	136,406	136,864	137,169	137,493	137,557
Participation rate	66.8	67.1	67.0	67.2	67.1	67.1	67.1	67.1	67.1	67.0	66.9	67.1	67.2	67.3	67.3
Employed	126,708	129,558	128,515	129,035	129,275	129,494	129,392	129,661	129,747	129,761	129,910	130,575	130,777	131,083	131,163
Employment-population ratio[2]	63.2	63.8	63.5	63.7	63.8	63.8	63.7	63.8	63.8	63.7	63.8	64.0	64.1	64.2	64.2
Unemployed	7,236	6,739	7,174	7,080	6,768	6,566	6,814	6,633	6,657	6,678	6,496	6,289	6,392	6,409	6,393
Unemployment rate	5.4	4.9	5.3	5.2	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7	4.6
Not in the labor force	66,647	66,837	66,700	66,398	66,631	66,772	66,794	66,872	66,960	67,131	67,361	67,077	66,929	66,745	66,844
Men, 20 years and over															
Civilian noninstitutional population[1]	88,606	89,879	89,556	89,604	89,680	89,776	89,829	89,888	89,982	90,068	90,140	90,251	90,339	90,391	90,476
Civilian labor force	68,044	69,166	68,872	69,040	69,107	68,990	69,157	69,171	69,198	69,136	69,193	69,500	69,561	69,652	69,601
Participation rate	76.8	77.0	76.9	77.1	77.1	76.9	77.0	77.0	76.9	76.8	76.8	77.0	77.0	77.1	76.9
Employed	64,897	66,284	65,860	66,031	66,198	66,309	66,258	66,361	66,386	66,298	66,337	66,824	66,676	67,008	66,990
Employment-population ratio[2]	73.2	73.7	73.5	73.7	73.8	73.9	73.8	73.8	73.8	73.6	73.6	74.0	73.8	74.1	74.0
Agriculture	2,356	2,356	2,313	2,357	2,411	2,402	2,398	2,390	2,311	2,383	2,298	2,323	2,314	2,282	2,264
Nonagricultural industries	62,541	63,927	63,547	63,674	63,787	63,907	63,860	63,971	64,075	63,915	64,039	64,501	64,362	64,726	64,726
Unemployed	3,146	2,882	3,012	3,009	2,909	2,681	2,899	2,810	2,812	2,838	2,856	2,676	2,885	2,644	2,611
Unemployment rate	4.6	4.2	4.4	4.4	4.2	3.9	4.2	4.1	4.1	4.1	4.1	3.9	4.1	3.8	3.8
Women, 20 years and over															
Civilian noninstitutional population[1]	97,050	97,889	97,571	97,638	97,685	97,767	97,834	97,919	98,000	98,082	98,144	98,212	98,300	98,420	98,471
Civilian labor force	58,094	59,198	58,791	59,070	58,975	59,129	59,195	59,232	59,362	59,432	59,338	59,348	59,624	59,652	59,721
Participation rate	59.9	60.5	60.3	60.5	60.4	60.5	60.5	60.5	60.6	60.6	60.5	60.4	60.7	60.6	60.6
Employed	55,311	56,613	56,021	56,322	56,357	56,488	56,575	56,693	56,789	56,883	56,919	56,953	57,255	57,040	57,146
Employment-population ratio[2]	57.0	57.8	57.4	57.7	57.7	57.8	57.8	57.9	57.9	58.0	58.0	58.0	58.2	58.0	58.0
Agriculture	827	798	774	752	775	760	755	831	824	826	814	833	845	811	801
Nonagricultural industries	54,484	55,815	55,247	55,570	55,582	55,728	55,820	55,862	55,965	56,057	56,105	56,120	56,410	56,229	56,345
Unemployed	2,783	2,585	2,770	2,748	2,618	2,641	2,620	2,539	2,573	2,549	2,419	2,395	2,369	2,612	2,575
Unemployment rate	4.8	4.4	4.7	4.7	4.4	4.5	4.4	4.3	4.3	4.3	4.1	4.0	4.0	4.4	4.3
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,934	15,365	15,261	15,271	15,309	15,300	15,336	15,359	15,382	15,420	15,483	15,478	15,459	15,427	15,453
Civilian labor force	7,806	7,932	8,026	8,005	7,961	7,941	7,854	7,891	7,844	7,871	7,875	8,016	7,984	8,189	8,235
Participation rate	52.3	51.6	52.6	52.4	52.0	51.9	51.2	51.4	51.0	51.0	50.9	51.8	51.6	53.1	53.3
Employed	6,500	6,661	6,634	6,682	6,720	6,697	6,559	6,607	6,572	6,580	6,654	6,798	6,846	7,035	7,028
Employment-population ratio[2]	43.5	43.4	43.5	43.8	43.9	43.8	42.8	43.0	42.7	42.7	43.0	43.9	44.3	45.6	45.5
Agriculture	261	244	253	278	276	256	236	231	244	213	215	228	226	227	270
Nonagricultural industries	6,239	6,417	6,381	6,404	6,444	6,441	6,323	6,376	6,328	6,367	6,439	6,570	6,620	6,809	6,758
Unemployed	1,306	1,271	1,392	1,323	1,241	1,244	1,295	1,284	1,272	1,291	1,221	1,218	1,138	1,154	1,207
Unemployment rate	16.7	16.0	17.3	16.5	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1	14.7
White															
Civilian noninstitutional population[1]	168,317	169,993	169,492	169,569	169,675	169,782	169,897	170,010	170,148	170,290	170,427	170,545	170,649	170,810	170,917
Civilian labor force	113,108	114,693	114,326	114,597	114,567	114,562	114,659	114,622	114,669	114,758	114,784	115,073	115,263	115,253	115,392
Participation rate	67.2	67.5	67.5	67.6	67.5	67.5	67.5	67.4	67.4	67.4	67.4	67.5	67.5	67.5	67.5
Employed	107,808	109,856	109,211	109,528	109,721	109,906	109,779	109,851	109,832	109,904	110,063	110,604	110,729	110,689	110,842
Employment-population ratio[2]	64.1	64.6	64.4	64.6	64.7	64.7	64.6	64.6	64.6	64.5	64.6	64.9	64.9	64.8	64.9
Unemployed	5,300	4,836	5,115	5,069	4,846	4,656	4,880	4,771	4,837	4,854	4,721	4,469	4,534	4,555	4,550
Unemployment rate	4.7	4.2	4.5	4.4	4.2	4.1	4.3	4.2	4.2	4.2	4.1	3.9	3.9	4.0	3.9
Black															
Civilian noninstitutional population[1]	23,604	24,003	23,872	23,895	23,923	23,950	23,978	24,006	24,043	24,081	24,117	24,149	24,180	24,196	24,229
Civilian labor force	15,134	15,529	15,420	15,438	15,389	15,424	15,426	15,524	15,728	15,691	15,555	15,638	15,709	15,788	15,885
Participation rate	64.1	64.7	64.6	64.6	64.3	64.4	64.3	64.7	65.4	65.2	64.5	64.8	65.0	65.3	65.6
Employed	13,542	13,969	13,722	13,816	13,864	13,837	13,836	14,040	14,237	14,180	14,067	14,128	14,149	14,316	14,349
Employment-population ratio[2]	57.4	58.2	57.5	57.8	58.0	57.8	57.7	58.5	59.2	28.9	58.3	58.5	58.5	59.2	59.2
Unemployed	1,592	1,560	1,698	1,622	1,525	1,587	1,590	1,484	1,491	1,511	1,488	1,510	1,560	1,472	1,535
Unemployment rate	10.5	10.0	11.0	10.5	9.9	10.3	10.3	9.6	9.5	9.6	9.6	9.7	9.9	9.3	9.7

Continued—Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

mbers in thousands]

mployment status	Annual average		1997											1998	
	1996	1997	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Hispanic origin															
ian noninstitutional opulation[1]	19,213	20,321	20,067	20,119	20,180	20,236	20,293	20,351	20,407	20,464	20,519	20,575	20,629	20,741	20,798
ivilian labor force	12,774	13,796	13,634	13,666	13,601	13,760	13,814	13,861	13,886	13,861	13,896	13,880	13,973	13,954	14,149
Participation rate	66.5	67.9	67.9	67.9	67.4	68.0	68.1	68.1	68.0	67.7	67.7	67.5	67.7	67.3	68.0
Employed	11,642	12,726	12,529	12,533	12,514	12,713	12,751	12,772	12,867	12,807	12,806	12,921	12,921	12,988	13,181
Employment-population ratio[2]	60.6	62.6	62.4	62.3	62.0	62.8	62.8	62.8	63.1	62.6	62.4	62.8	62.6	62.6	63.4
Unemployed	1,132	1,069	1,105	1,133	1,087	1,047	1,063	1,089	1,019	1,054	1,090	959	1,052	966	968
Unemployment rate	8.9	7.7	8.1	8.3	8.0	7.6	7.7	7.9	7.3	7.6	7.8	6.9	7.5	6.9	6.8

The population figures are not seasonally adjusted.

Civilian employment as a percent of the civilian noninstitutional population.

DTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

Selected employment indicators, monthly data seasonally adjusted

thousands]

Selected categories	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Characteristic															
ployed, 16 years and over	126,708	129,558	128,515	129,035	129,275	129,494	129,392	129,661	129,747	129,761	129,910	130,575	130,777	131,083	131,163
Men	68,207	69,685	69,248	69,415	69,565	69,765	69,586	69,711	69,748	69,656	69,785	70,352	70,195	70,518	70,459
Women	58,501	59,873	59,267	59,620	59,710	59,729	59,806	59,950	59,999	60,105	60,125	60,223	60,582	60,565	60,704
Married men, spouse present	42,417	42,642	42,489	42,502	42,426	42,357	42,476	42,582	42,680	42,648	42,771	42,967	42,952	42,977	42,915
Married women, spouse present	32,406	32,755	32,597	32,690	32,549	32,520	32,654	32,813	32,861	32,846	32,978	32,840	32,975	32,793	32,821
Women who maintain families	7,363	7,775	7,585	7,696	7,790	7,820	7,820	7,875	7,892	7,876	7,865	7,726	7,822	7,784	7,884
Class of worker															
iculture.															
Vage and salary workers	1,869	1,890	1,912	1,901	1,952	1,917	1,912	1,897	1,853	1,889	1,815	1,855	1,844	1,949	1,928
Self-employed workers	1,518	1,457	1,373	1,433	1,438	1,442	1,429	1,478	1,477	1,495	1,475	1,493	1,496	1,348	1,324
Unpaid family workers	56	51	18	59	62	52	47	52	50	44	55	49	54	44	41
nagricultural industries:															
Vage and salary workers	114,171	116,983	115,949	116,413	116,515	116,874	116,642	117,146	117,372	117,303	117,635	118,083	118,403	118,529	118,961
Government	18,217	18,131	18,144	18,067	18,048	17,863	18,113	18,303	18,203	18,109	18,075	18,170	18,248	18,421	18,378
Private industries	95,954	98,852	97,805	98,346	98,467	99,011	98,529	98,843	99,169	99,194	99,560	99,913	100,155	100,108	100,583
Private households	928	915	894	882	923	948	888	911	935	877	877	910	946	985	1,035
Other	95,025	97,937	96,911	97,464	97,544	98,063	97,641	97,932	98,234	98,317	98,683	99,003	99,209	99,123	99,547
Self-employed workers	8,971	9,056	9,112	9,219	9,124	9,098	9,089	8,927	8,955	8,949	8,930	9,004	8,886	8,964	8,761
Unpaid family workers	122	120	136	109	133	142	128	129	126	83	92	97	99	131	117
ersons at work part time[1]															
industries:															
Part time for economic reasons	4,315	4,068	4,250	4,162	4,360	4,060	4,049	4,019	3,988	3,928	3,913	3,890	3,855	4,082	3,882
Slack work or business conditions	2,388	2,286	2,365	2,340	2,402	2,295	2,347	2,236	2,164	2,187	2,211	2,221	2,230	2,282	2,123
Could only find part-time work	1,605	1,468	1,550	1,519	1,625	1,440	1,373	1,489	1,487	1,455	1,406	1,386	1,323	1,400	1,455
Part time for noneconomic reasons	17,770	18,149	18,061	18,144	18,155	18,218	18,205	18,055	18,096	17,901	18,113	18,083	18,386	18,515	18,407
nagricultural industries:															
Part time for economic reasons	4,123	3,879	4,075	3,957	4,204	3,853	3,819	3,858	3,832	3,739	3,732	3,689	3,654	3,865	3,743
Slack work or business conditions	2,263	2,167	2,259	2,210	2,279	2,166	2,202	2,121	2,066	2,067	2,103	2,100	2,113	2,162	2,025
Could only find part-time work	1,576	1,433	1,521	1,484	1,599	1,402	1,320	1,462	1,455	1,417	1,378	1,346	1,291	1,373	1,433
Part time for noneconomic reasons	17,150	17,564	17,461	17,559	17,588	17,654	17,577	17,452	17,521	17,381	17,537	17,486	17,791	17,898	17,786

Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

6. Selected unemployment indicators, monthly data seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Characteristic															
Total, all workers	5.4	4.9	5.3	5.2	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7	4.6
Both sexes, 16 to 19 years	16.7	16.0	17.3	16.6	15.6	15.7	16.5	16.3	15.2	15.4	15.5	15.2	14.3	14.1	14.7
Men, 20 years and over	4.6	4.2	4.4	4.4	4.2	3.9	4.2	4.1	4.1	4.1	4.1	3.9	4.1	3.8	3.8
Women, 20 years and over	4.8	4.4	4.7	4.7	4.4	4.5	4.4	4.3	4.3	4.3	4.1	4.0	4.0	4.4	4.3
White, total	4.7	4.2	4.5	4.4	4.2	4.1	4.3	4.2	4.2	4.2	4.1	3.9	3.9	4.0	3.9
Both sexes, 16 to 19 years	14.2	13.6	14.8	14.1	13.5	12.9	14.4	14.4	14.2	14.1	13.4	12.3	11.2	11.6	12.3
Men, 16 to 19 years	15.5	14.3	14.8	15.1	14.6	13.0	15.8	15.0	15.1	14.4	14.3	12.8	11.3	14.2	14.7
Women, 16 to 19 years	12.9	12.8	14.4	13.0	12.2	12.7	12.8	13.7	13.1	13.7	12.3	11.6	11.1	8.8	9.8
Men, 20 years and over	4.1	3.6	3.8	3.8	3.6	3.3	3.6	3.5	3.6	3.6	3.6	3.4	3.6	3.3	3.2
Women, 20 years and over	4.1	3.7	3.9	3.9	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.4	3.4	3.7	3.6
Black, total	10.5	10.0	11.0	10.5	9.9	10.3	10.3	9.6	9.5	9.6	9.6	9.7	9.9	9.3	9.7
Both sexes, 16 to 19 years	33.6	32.4	33.6	32.1	31.9	33.9	32.2	35.0	35.4	32.7	29.5	33.3	34.4	30.1	31.5
Men, 16 to 19 years	36.9	36.5	36.8	40.5	37.7	34.5	39.1	34.8	33.9	37.6	30.1	35.0	36.2	31.8	34.7
Women, 16 to 19 years	30.3	28.7	30.4	34.5	26.3	33.3	25.5	25.9	27.2	28.5	28.8	31.9	33.1	28.5	28.4
Men, 20 years and over	9.4	8.5	8.8	8.9	8.4	8.4	9.0	8.3	7.9	7.9	8.3	7.8	8.6	7.9	7.8
Women, 20 years and over	8.7	8.8	10.0	9.2	8.6	9.2	9.0	8.4	8.4	8.4	8.3	8.4	8.1	8.0	8.6
Hispanic origin, total	8.9	7.7	8.1	8.3	8.0	7.6	7.7	7.9	7.3	7.6	7.8	6.9	7.5	6.9	6.8
Married men, spouse present	3.0	2.7	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.4	2.6	2.6	2.5
Married women, spouse present	3.6	3.1	3.4	3.3	3.2	3.2	3.2	3.1	3.0	3.1	2.8	2.8	2.8	3.1	3.1
Women who maintain families	8.2	8.1	8.8	8.7	7.9	7.9	8.0	7.6	8.0	7.8	7.8	8.1	7.7	7.6	7.8
Full-time workers	5.3	4.8	5.1	5.1	4.8	4.8	4.9	4.8	4.7	4.7	4.7	4.4	4.6	4.5	4.5
Part-time workers	5.8	5.5	5.9	5.7	5.6	5.3	5.3	5.4	5.5	5.5	5.3	5.4	5.0	5.4	5.2
Industry															
Nonagricultural wage and salary workers	5.5	5.0	5.3	5.2	5.0	5.0	5.0	4.9	5.0	5.0	4.8	4.7	4.8	4.7	4.7
Mining	5.1	3.8	4.0	3.9	2.3	3.3	2.8	4.1	4.9	3.4	4.5	3.3	3.3	4.0	2.6
Construction	10.1	9.0	9.1	9.4	8.8	8.6	8.8	8.7	9.0	8.7	8.7	7.9	8.9	7.9	7.8
Manufacturing	4.8	4.2	4.5	4.3	4.4	4.3	4.2	4.3	4.1	4.1	3.8	3.6	3.8	3.9	3.7
Durable goods	4.5	3.5	4.0	3.7	3.6	3.8	3.6	3.5	3.5	3.3	3.1	3.1	3.1	3.4	2.9
Nondurable goods	5.2	5.1	5.3	5.3	5.5	5.3	5.0	5.4	5.0	5.3	4.8	4.4	4.9	4.5	5.0
Transportation and public utilities	4.1	3.5	4.1	3.9	2.9	3.6	3.0	3.4	3.7	3.8	3.3	3.1	3.3	3.8	3.2
Wholesale and retail trade	6.4	6.2	6.4	6.3	6.2	6.1	6.4	6.1	6.2	6.2	6.1	6.2	5.8	5.9	5.8
Finance, insurance, and real estate	2.7	3.0	3.1	3.2	3.3	3.1	2.5	3.1	3.0	3.0	2.9	2.4	2.8	2.6	2.6
Services	5.4	4.6	4.9	4.9	4.6	4.7	4.7	4.4	4.5	4.6	4.3	4.4	4.5	4.3	4.7
Government workers	2.9	2.6	2.9	2.8	2.4	2.5	2.8	2.7	2.6	2.6	2.4	2.3	2.1	2.4	2.3
Agricultural wage and salary workers	10.2	9.1	9.0	9.3	9.5	7.6	10.4	8.4	8.9	9.0	9.6	8.6	9.7	10.6	8.6
Educational attainment[1]															
Less than a high school diploma	8.7	8.1	8.8	8.4	8.2	8.2	8.2	7.8	7.7	8.0	7.7	7.5	7.6	7.2	7.0
High school graduates, no college	4.7	4.3	4.5	4.4	4.2	4.2	4.4	4.2	4.3	4.2	4.2	3.8	4.1	3.9	4.0
Some college, less than a bachelor's degree	3.7	3.3	3.5	3.6	3.3	3.0	3.2	3.2	3.2	3.2	2.9	3.1	3.2	3.2	3.1
College graduates	2.2	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.9	1.9

[1] Data refer to persons 25 years and over.

7. Duration of unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Less than 5 weeks	2,633	2,538	2,580	2,618	2,471	2,542	2,541	2,446	2,564	2,484	2,558	2,423	2,531	2,488	2,622
5 to 14 weeks	2,287	2,138	2,341	2,325	2,177	2,067	2,188	2,097	2,121	2,115	1,912	2,048	1,922	1,971	1,909
15 weeks and over	2,316	2,062	2,158	2,079	2,088	2,076	2,069	2,128	2,027	2,109	1,990	1,865	1,964	1,811	1,830
15 to 26 weeks	1,053	995	1,031	1,003	1,033	1,054	1,031	1,061	950	1,031	919	899	936	773	855
27 weeks and over	1,262	1,067	1,127	1,076	1,055	1,022	1,038	1,067	1,077	1,078	1,071	966	1,028	1,038	974
Mean duration, in weeks	16.7	15.8	15.9	15.4	15.4	15.3	15.3	16.5	15.8	15.9	16.3	15.6	16.3	15.6	15.6
Median duration, in weeks	8.3	8.0	8.2	7.9	8.1	7.8	7.9	8.2	7.9	8.1	7.7	7.8	7.7	7.4	7.2

8. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Reason for unemployment	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Job losers[1]	3,370	3,037	3,147	3,148	3,038	2,961	3,094	2,954	3,010	3,007	2,934	2,886	2,991	2,807	2,795
On temporary layoff	1,021	931	949	993	958	909	928	894	891	893	963	815	961	860	821
Not on temporary layoff	2,349	2,106	2,198	2,155	2,080	2,052	2,166	2,060	2,119	2,114	1,971	2,071	2,030	1,947	1,975
Job leavers	774	795	804	797	776	808	827	812	894	853	732	655	692	808	786
Reentrants	2,512	2,338	2,608	2,497	2,422	2,338	2,333	2,263	2,173	2,263	2,247	2,229	2,170	2,229	2,266
New entrants	580	569	623	617	569	573	510	564	554	560	555	560	552	518	543
Percent of unemployed															
Job losers[1]	46.6	45.1	43.8	44.6	44.6	44.3	45.7	44.8	45.4	45.0	45.4	45.6	46.7	44.1	43.7
On temporary layoff	14.1	13.8	13.2	14.1	14.1	13.6	13.7	13.6	13.4	13.4	14.9	12.9	15.0	13.5	12.8
Not on temporary layoff	32.5	31.3	30.6	30.5	30.6	30.7	32.0	31.2	32.0	31.6	30.5	32.7	31.7	30.6	30.9
Job leavers	10.7	11.8	11.2	11.3	11.4	12.1	12.2	12.3	13.5	12.8	11.3	10.3	10.8	12.7	12.3
Reentrants	34.7	34.7	36.3	35.4	35.6	35.0	34.5	34.3	32.8	33.9	34.7	35.2	33.9	35.0	35.5
New entrants	8.0	8.4	8.7	8.7	8.4	8.6	7.5	8.6	8.4	8.4	8.6	8.8	8.6	8.1	8.5
Percent of civilian labor force															
Job losers[1]	2.5	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.0	2.0
Job leavers	.6	.6	.6	.6	.6	.6	.6	.6	.7	.6	.5	.5	.5	.6	.6
Reentrants	1.9	1.7	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.7	1.6	1.6	1.6	1.6	1.6
New entrants	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4

[1] Includes persons who completed temporary jobs.

9. Unemployment rates by sex and age, monthly data seasonally adjusted

[Civilian workers]

Sex and age	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Total, 16 years and over	5.4	4.9	5.3	5.2	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7	4.6
16 to 24 years	12.0	11.3	12.0	11.7	11.3	11.0	11.4	11.0	11.3	11.2	11.1	10.9	10.6	10.8	10.8
16 to 19 years	16.7	16.0	17.3	16.5	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1	14.7
16 to 17 years	18.9	18.2	19.5	19.0	18.4	18.3	17.3	17.9	17.9	19.3	17.5	17.6	17.7	17.3	18.5
18 to 19 years	15.2	14.5	15.2	14.9	13.6	13.9	15.9	15.5	15.4	14.5	14.1	13.6	11.7	11.6	11.3
20 to 24 years	9.3	8.5	8.8	8.9	8.8	8.2	8.4	7.9	8.4	8.2	8.5	8.4	8.5	8.9	8.5
25 years and over	4.2	3.8	4.0	4.0	3.7	3.7	3.8	3.7	3.7	3.7	3.6	3.4	3.6	3.5	3.5
25 to 54 years	4.3	3.9	4.2	4.1	3.8	3.9	3.9	3.8	3.8	3.8	3.7	3.5	3.7	3.6	3.6
55 years and over	3.4	3.0	3.1	3.3	2.9	2.9	3.1	3.0	3.0	3.1	2.8	2.8	2.8	2.7	2.7
Men, 16 years and over	5.4	4.9	5.1	5.1	4.9	4.5	5.0	4.8	4.8	4.8	4.8	4.5	4.7	4.5	4.5
16 to 24 years	12.6	11.8	12.1	12.1	11.8	10.7	11.9	11.5	11.9	12.0	12.0	11.6	11.1	11.2	11.7
16 to 19 years	18.1	16.9	17.9	17.9	17.4	15.7	18.2	17.2	17.3	17.2	16.3	15.6	14.2	16.4	17.0
16 to 17 years	20.8	19.1	19.7	20.9	20.2	18.5	19.7	18.8	18.1	18.8	18.2	18.2	18.4	18.3	21.0
18 to 19 years	16.3	15.4	15.7	16.1	15.5	14.0	17.4	16.1	17.3	16.1	14.8	14.1	11.1	14.9	13.1
20 to 24 years	9.5	8.9	8.8	8.8	8.7	7.8	8.3	8.3	8.8	9.1	9.5	9.3	9.3	8.1	8.7
25 years and over	4.1	3.6	3.9	3.8	3.7	3.5	3.7	3.6	3.6	3.5	3.5	3.2	3.5	3.3	3.2
25 to 54 years	4.2	3.7	4.0	3.9	3.8	3.6	3.8	3.7	3.6	3.6	3.6	3.3	3.6	3.4	3.2
55 years and over	3.3	3.1	3.3	3.4	2.9	2.9	3.1	3.0	3.1	3.0	3.0	2.9	3.4	3.1	2.9
Women, 16 years and over	5.4	5.0	5.5	5.3	5.0	5.1	5.0	5.0	5.0	5.0	4.7	4.7	4.6	4.8	4.8
16 to 24 years	11.3	10.7	11.8	11.2	10.8	11.3	10.8	10.4	10.6	10.4	10.1	10.1	10.2	10.4	9.8
16 to 19 years	15.2	15.0	16.7	15.0	13.7	15.6	14.7	15.3	15.0	15.5	14.7	14.7	14.3	11.6	12.3
16 to 17 years	16.9	17.2	19.3	17.0	16.6	18.1	14.7	16.9	17.7	19.8	16.7	17.0	17.0	16.3	16.0
18 to 19 years	14.0	13.6	14.7	13.7	11.6	13.9	14.2	14.8	13.3	12.8	13.4	13.0	12.4	8.2	9.5
20 to 24 years	9.0	8.1	8.8	8.9	9.0	8.7	8.5	7.5	7.9	7.3	7.4	7.4	7.6	9.7	8.3
25 years and over	4.3	3.9	4.2	4.2	3.8	4.0	3.9	3.9	3.9	4.0	3.7	3.6	3.6	3.7	3.8
25 to 54 years	4.4	4.1	4.4	4.3	3.9	4.2	4.1	4.0	4.0	4.1	3.8	3.8	3.9	3.9	4.1
55 years and over	3.5	2.9	2.8	3.1	3.0	3.0	3.1	3.0	3.0	3.2	2.7	2.6	2.1	2.3	2.4

10. Unemployment rates by State, seasonally adjusted

State	Jan. 1997	Dec. 1997	Jan. 1998[P]	State	Jan. 1997	Dec. 1997	Jan. 1998[P]
Alabama	5.1	4.6	4.1	Missouri	4.7	4.0	3.8
Alaska	8.2	7.1	6.2	Montana	5.3	5.4	5.4
Arizona	5.4	4.2	3.7	Nebraska	3.2	1.9	1.8
Arkansas	5.7	5.0	5.2	Nevada	4.6	4.0	4.3
California	6.7	6.0	5.9	New Hampshire	3.5	2.9	2.7
Colorado	3.7	3.0	2.9	New Jersey	5.5	4.9	4.9
Connecticut	5.7	4.5	3.8	New Mexico	7.1	6.4	6.1
Delaware	4.9	3.4	3.4	New York	6.5	6.1	6.0
District of Columbia	7.8	8.1	8.4	North Carolina	3.8	3.7	3.6
Florida	4.9	4.7	4.6	North Dakota	3.0	2.0	1.8
Georgia	4.8	4.1	4.0	Ohio	4.9	4.4	4.0
Hawaii	6.5	6.0	5.6	Oklahoma	4.5	3.6	3.3
Idaho	5.6	5.2	5.0	Oregon	6.3	5.3	5.2
Illinois	5.0	4.8	4.9	Pennsylvania	5.3	4.8	4.6
Indiana	3.4	3.5	3.3	Rhode Island	5.3	4.9	4.7
Iowa	3.7	2.9	2.8	South Carolina	5.5	3.7	3.8
Kansas	4.2	3.8	3.4	South Dakota	3.6	2.7	2.8
Kentucky	5.9	4.8	4.5	Tennessee	5.4	5.1	4.4
Louisiana	6.3	5.7	5.1	Texas	5.6	4.9	4.9
Maine	5.3	5.3	4.8	Utah	3.3	2.9	2.8
Maryland	5.0	4.8	4.8	Vermont	4.2	3.7	3.6
Massachusetts	4.0	3.8	3.6	Virginia	4.2	3.4	3.3
Michigan	4.6	3.9	4.0	Washington	5.3	4.4	4.5
Minnesota	3.6	2.9	2.7	West Virginia	7.4	6.4	6.1
Mississippi	6.0	5.1	5.4	Wisconsin	3.8	3.5	3.2
				Wyoming	5.7	4.5	4.1

[P] = preliminary

11. Employment of workers on nonfarm payrolls by State, seasonally adjusted

[In thousands]

State	Jan. 1997	Dec. 1997	Jan. 1998[P]	State	Jan. 1997	Dec. 1997	Jan. 1998[P]
Alabama	1,850.6	1,871.9	1,874.7	Missouri	2,607.8	2,658.9	2,664.4
Alaska	266.2	268.3	270.0	Montana	361.8	370.3	368.1
Arizona	1,932.8	2,021.9	2,035.5	Nebraska	843.9	868.6	872.8
Arkansas	1,090.5	1,111.6	1,110.1	Nevada	873.2	907.2	906.7
California	12,907.4	13,398.3	13,419.1	New Hampshire	562.2	570.0	574.1
Colorado	1,942.1	2,009.5	2,015.6	New Jersey	3,688.5	3,766.5	3,772.6
Connecticut	1,600.5	1,642.6	1,639.2	New Mexico	698.9	713.9	712.2
Delaware	382.5	395.5	394.4	New York	7,967.7	8,095.6	8,086.7
District of Columbia	618.8	610.4	614.1	North Carolina	3,616.8	3,715.4	3,722.3
Florida	6,316.9	6,551.6	6,565.9	North Dakota	311.2	316.2	317.2
Georgia	3,569.5	3,690.0	3,689.4	Ohio	5,339.5	5,421.7	5,434.9
Hawaii	533.8	530.5	528.3	Oklahoma	1,370.7	1,405.1	1,404.9
Idaho	503.2	514.0	512.5	Oregon	1,505.9	1,551.0	1,552.8
Illinois	5,720.7	5,833.8	5,832.0	Pennsylvania	5,371.7	5,446.5	5,454.7
Indiana	2,840.0	2,884.0	2,876.6	Rhode Island	445.5	453.4	452.9
Iowa	1,392.8	1,419.2	1,422.6	South Carolina	1,703.1	1,749.1	1,763.0
Kansas	1,246.2	1,287.4	1,291.6	South Dakota	349.9	356.1	354.8
Kentucky	1,695.0	1,732.0	1,750.4	Tennessee	2,553.8	2,605.3	2,618.7
Louisiana	1,827.9	1,869.8	1,871.1	Texas	8,432.4	8,760.7	8,751.5
Maine	546.3	561.4	558.4	Utah	975.4	1,014.3	1,016.6
Maryland	2,242.0	2,273.8	2,281.8	Vermont	275.7	281.4	279.8
Massachusetts	3,081.7	3,168.4	3,173.0	Virginia	3,197.5	3,278.7	3,276.2
Michigan	4,411.5	4,489.6	4,493.4	Washington	2,468.0	2,543.6	2,546.8
Minnesota	2,453.3	2,518.5	2,515.8	West Virginia	704.9	717.1	717.1
Mississippi	1,095.0	1,112.6	1,118.9	Wisconsin	2,623.2	2,648.9	2,688.8
				Wyoming	221.5	223.0	222.8

12. Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]
TOTAL	119,523	122,259	121,162	121,344	121,671	121,834	122,056	122,440	122,492	122,792	123,083	123,512	123,866	124,241	124,551
PRIVATE SECTOR	100,076	102,605	101,615	101,799	102,092	102,269	102,417	102,721	102,688	103,078	103,334	103,749	104,096	104,466	104,740
GOODS-PRODUCING	24,431	24,739	24,653	24,670	24,667	24,702	24,714	24,713	24,765	24,771	24,814	24,888	24,995	25,132	25,169
Mining	574	574	574	572	573	576	574	574	573	576	574	572	574	574	572
Metal mining	54	54	54	54	54	54	54	54	54	54	53	54	53	52	52
Oil and gas extraction	317	320	319	317	319	321	320	321	321	323	323	322	323	324	324
Nonmetallic minerals, except fuels	106	108	108	108	107	108	108	108	107	108	107	106	108	108	107
Construction	5,400	5,629	5,604	5,609	5,599	5,628	5,622	5,625	5,637	5,642	5,650	5,682	5,747	5,839	5,880
General building contractors	1,254	1,306	1,298	1,298	1,297	1,300	1,302	1,308	1,306	1,305	1,311	1,327	1,343	1,361	1,366
Heavy construction, except building	770	768	791	777	767	777	766	761	764	762	758	759	774	781	789
Special trades contractors	3,377	3,554	3,515	3,534	3,535	3,551	3,554	3,556	3,567	3,575	3,581	3,596	3,630	3,697	3,725
Manufacturing	18,457	18,537	18,475	18,489	18,495	18,498	18,518	18,514	18,555	18,553	18,590	18,634	18,674	18,719	18,717
Production workers	12,749	12,809	12,762	12,771	12,774	12,790	12,791	12,792	12,815	12,818	12,851	12,882	12,913	12,944	12,940
Durable goods	10,766	10,915	10,836	10,848	10,856	10,864	10,891	10,910	10,957	10,952	10,985	11,020	11,048	11,092	11,100
Production workers	7,370	7,489	7,427	7,437	7,440	7,454	7,466	7,482	7,525	7,518	7,545	7,570	7,593	7,627	7,630
Lumber and wood products	780	798	793	797	799	800	797	796	798	798	800	800	806	807	808
Furniture and fixtures	504	509	507	507	506	508	508	510	506	508	509	511	513	516	519
Stone, clay, and glass products	541	542	543	542	541	540	538	541	541	541	543	542	543	551	550
Primary metal industries	711	711	708	709	710	708	709	708	711	713	716	716	717	719	720
Fabricated metal products	1,448	1,472	1,462	1,463	1,468	1,468	1,470	1,468	1,475	1,477	1,482	1,485	1,489	1,495	1,497
Industrial machinery and equipment	2,112	2,155	2,132	2,136	2,142	2,146	2,152	2,155	2,165	2,168	2,176	2,184	2,188	2,195	2,195
Computer and office equipment	363	379	370	372	375	378	379	381	385	384	386	384	387	387	387
Electronic and other electrical equipment	1,651	1,656	1,645	1,645	1,643	1,644	1,651	1,658	1,661	1,663	1,666	1,673	1,678	1,686	1,687
Electronic components and accessories	610	629	612	614	618	622	628	632	637	639	644	647	651	655	655
Transportation equipment	1,781	1,830	1,804	1,810	1,804	1,809	1,824	1,826	1,855	1,840	1,849	1,868	1,868	1,872	1,878
Motor vehicles and equipment	963	972	964	969	957	960	967	965	985	973	977	995	988	991	991
Aircraft and parts	460	505	487	491	495	498	505	510	514	515	518	521	526	525	528
Instruments and related products	854	857	854	853	855	854	856	859	858	858	859	860	861	864	861
Miscellaneous manufacturing industries	387	386	388	386	388	387	386	389	387	386	385	381	385	387	385
Nondurable goods	7,691	7,622	7,639	7,641	7,639	7,634	7,627	7,604	7,598	7,601	7,605	7,614	7,626	7,627	7,617
Production workers	5,379	5,320	5,335	5,334	5,334	5,336	5,325	5,310	5,290	5,300	5,306	5,312	5,320	5,317	5,310
Food and kindred products	1,693	1,693	1,694	1,698	1,699	1,693	1,692	1,684	1,679	1,688	1,690	1,701	1,706	1,710	1,706
Tobacco products	41	41	42	42	41	41	41	41	40	40	41	42	41	40	41
Textile mill products	624	608	612	612	609	609	607	608	604	605	604	602	604	601	599
Apparel and other textile products	864	813	831	827	822	818	816	810	810	803	800	796	795	792	783
Paper and allied products	681	676	678	677	677	677	675	675	675	675	675	676	676	678	676
Printing and publishing	1,538	1,544	1,534	1,535	1,541	1,546	1,550	1,549	1,547	1,547	1,548	1,551	1,553	1,556	1,559
Chemicals and allied products	1,032	1,027	1,028	1,028	1,029	1,030	1,027	1,023	1,024	1,026	1,028	1,028	1,029	1,027	1,031
Petroleum and coal products	142	138	139	140	140	139	138	138	138	138	137	137	138	133	134
Rubber and miscellaneous plastics products	981	990	987	988	988	988	989	986	991	990	993	992	996	1,003	1,001
Leather and leather products	96	91	94	94	93	93	92	90	90	89	89	89	88	87	87
SERVICE-PRODUCING	95,092	97,520	96,509	96,674	97,004	97,132	97,342	97,727	97,727	98,021	98,269	98,624	98,871	99,109	99,382
Transportation and public utilities	6,261	6,425	6,376	6,405	6,421	6,431	6,434	6,443	6,289	6,473	6,497	6,495	6,487	6,529	6,563
Transportation	4,038	4,182	4,142	4,164	4,179	4,187	4,193	4,202	4,049	4,232	4,247	4,243	4,221	4,257	4,291
Railroad transportation	231	228	227	226	225	226	230	229	225	227	226	229	230	232	233
Local and interurban passenger transit	439	458	453	455	460	458	457	461	464	457	458	459	462	463	466
Trucking and warehousing	1,641	1,688	1,664	1,671	1,676	1,687	1,686	1,692	1,703	1,708	1,710	1,702	1,699	1,712	1,719
Water transportation	173	177	175	175	177	176	178	176	179	176	178	177	175	171	175
Transportation by air	1,122	1,183	1,178	1,191	1,192	1,192	1,192	1,193	1,025	1,211	1,221	1,222	1,201	1,224	1,239
Pipelines, except natural gas	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Transportation services	417	436	431	432	435	434	436	437	439	439	440	440	440	441	445
Communications and public utilities	2,223	2,243	2,234	2,241	2,242	2,244	2,241	2,241	2,240	2,241	2,250	2,252	2,257	2,272	2,272
Communications	1,338	1,374	1,358	1,364	1,369	1,372	1,372	1,372	1,376	1,376	1,385	1,390	1,396	1,408	1,410
Electric, gas, and sanitary services	885	869	876	877	873	872	869	869	864	865	865	862	861	864	862
Wholesale trade	6,483	6,657	6,593	6,611	6,622	6,630	6,634	6,664	6,675	6,687	6,712	6,729	6,746	6,779	6,794
Retail trade	21,625	22,136	21,922	21,945	22,029	22,026	22,079	22,159	22,189	22,215	22,258	22,403	22,450	22,462	22,477
Building materials and garden supplies	892	927	918	922	931	932	928	930	929	926	926	934	934	945	950
General merchandise stores	2,726	2,807	2,752	2,783	2,799	2,787	2,798	2,803	2,822	2,818	2,824	2,868	2,874	2,868	2,865
Department stores	2,388	2,462	2,416	2,452	2,446	2,452	2,450	2,458	2,470	2,469	2,474	2,522	2,520	2,534	2,514

See footnotes at end of table.

12. Continued—Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]
Food stores	3,435	3,497	3,477	3,478	3,480	3,482	3,487	3,502	3,505	3,507	3,520	3,521	3,522	3,528	3,529
Automotive dealers and service stations	2,270	2,323	2,311	2,315	2,319	2,316	2,315	2,318	2,325	2,331	2,336	2,338	2,338	2,340	2,344
New and used car dealers	1,032	1,056	1,053	1,055	1,055	1,054	1,056	1,055	1,057	1,057	1,060	1,062	1,061	1,062	1,063
Apparel and accessory stores	1,101	1,103	1,103	1,104	1,105	1,099	1,097	1,096	1,102	1,102	1,108	1,111	1,106	1,112	1,103
Furniture and home furnishings stores	985	1,041	1,022	1,025	1,026	1,032	1,034	1,042	1,044	1,049	1,055	1,062	1,070	1,073	1,078
Eating and drinking places	7,499	7,605	7,556	7,525	7,571	7,572	7,595	7,639	7,618	7,626	7,626	7,669	7,688	7,697	7,709
Miscellaneous retail establishments	2,717	2,836	2,783	2,793	2,798	2,806	2,825	2,829	2,844	2,856	2,863	2,900	2,918	2,899	2,899
Finance, insurance, and real estate	6,899	7,053	6,980	6,992	7,019	7,029	7,034	7,058	7,068	7,082	7,108	7,132	7,151	7,163	7,190
Finance	3,301	3,405	3,355	3,366	3,381	3,389	3,394	3,405	3,414	3,427	3,444	3,457	3,472	3,477	3,494
Depository institutions	2,024	2,046	2,034	2,037	2,041	2,043	2,044	2,048	2,048	2,048	2,052	2,058	2,064	2,059	2,064
Commercial banks	1,466	1,489	1,479	1,482	1,486	1,488	1,487	1,490	1,491	1,491	1,495	1,500	1,502	1,498	1,500
Savings institutions	263	253	255	254	253	253	254	253	252	251	250	250	253	253	252
Nondepository institutions	516	546	530	534	539	542	543	545	549	554	559	558	561	563	569
Security and commodity brokers	551	591	576	579	583	586	586	592	595	600	605	610	614	619	622
Holding and other investment offices	210	222	215	216	218	218	221	220	222	225	228	231	233	236	239
Insurance	2,217	2,230	2,219	2,217	2,221	2,222	2,226	2,230	2,232	2,232	2,239	2,247	2,257	2,256	2,261
Insurance carriers	1,510	1,510	1,503	1,500	1,502	1,503	1,506	1,509	1,510	1,511	1,516	1,521	1,529	1,527	1,529
Insurance agents, brokers, and service	707	720	716	717	719	719	720	721	722	721	723	726	728	729	732
Real estate	1,381	1,418	1,406	1,409	1,417	1,418	1,414	1,423	1,422	1,423	1,425	1,428	1,422	1,430	1,435
Services[1]	34,377	35,595	35,091	35,176	35,334	35,451	35,522	35,684	35,702	35,850	35,945	36,102	36,276	36,401	36,547
Agricultural services	625	669	649	648	664	669	668	673	675	680	684	687	682	688	685
Hotels and other lodging places	1,716	1,752	1,746	1,746	1,756	1,752	1,744	1,747	1,747	1,756	1,765	1,763	1,759	1,772	1,768
Personal services	1,184	1,190	1,197	1,196	1,193	1,189	1,182	1,182	1,185	1,187	1,188	1,197	1,185	1,185	1,191
Business services	7,254	7,666	7,521	7,577	7,594	7,618	7,645	7,682	7,657	7,732	7,759	7,832	7,918	7,961	8,025
Services to buildings	897	900	897	896	902	903	903	901	894	902	902	903	908	909	914
Personnel supply services	2,646	2,766	2,758	2,787	2,752	2,744	2,748	2,767	2,732	2,762	2,770	2,819	2,868	2,870	2,913
Help supply services	2,341	2,431	2,432	2,457	2,419	2,409	2,407	2,425	2,395	2,423	2,427	2,484	2,520	2,513	2,565
Computer and data processing services	1,208	1,342	1,278	1,291	1,306	1,322	1,337	1,347	1,360	1,375	1,387	1,401	1,421	1,436	1,456
Auto repair services and parking	1,084	1,137	1,123	1,126	1,132	1,136	1,131	1,137	1,139	1,145	1,148	1,153	1,157	1,162	1,160
Miscellaneous repair services	375	385	379	380	382	384	386	387	388	388	388	389	390	391	393
Motion pictures	522	542	532	529	528	532	537	539	550	549	550	551	561	556	558
Amusement and recreation services	1,466	1,548	1,495	1,494	1,503	1,542	1,561	1,576	1,563	1,568	1,563	1,583	1,600	1,607	1,620
Health services	9,469	9,687	9,600	9,612	9,644	9,673	9,673	9,697	9,712	9,731	9,750	9,771	9,795	9,802	9,827
Offices and clinics of medical doctors	1,679	1,743	1,720	1,721	1,728	1,740	1,740	1,745	1,745	1,754	1,763	1,773	1,780	1,788	1,791
Nursing and personal care facilities	1,732	1,761	1,751	1,753	1,760	1,764	1,761	1,762	1,765	1,764	1,766	1,767	1,769	1,765	1,771
Hospitals	3,814	3,876	3,846	3,852	3,857	3,864	3,869	3,877	3,884	3,892	3,900	3,910	3,917	3,928	3,936
Home health care services	665	682	676	678	684	682	682	685	685	684	682	683	681	673	671
Legal services	930	956	943	946	951	952	953	957	957	962	963	968	975	975	981
Educational services	2,020	2,081	2,046	2,047	2,062	2,062	2,074	2,089	2,094	2,105	2,110	2,118	2,121	2,135	2,143
Social services	2,403	2,478	2,438	2,445	2,458	2,466	2,474	2,494	2,497	2,502	2,507	2,511	2,521	2,528	2,537
Child day care services	569	589	579	580	581	587	590	594	600	597	594	594	598	605	604
Residential care	672	700	686	690	694	695	698	702	703	707	709	711	716	717	721
Museums and botanical and zoological gardens	85	88	87	87	87	88	88	88	88	88	88	89	89	88	89
Membership organizations	2,185	2,200	2,192	2,193	2,199	2,201	2,202	2,209	2,206	2,202	2,204	2,199	2,209	2,211	2,216
Engineering and management services	2,846	3,001	2,927	2,934	2,965	2,971	2,988	3,010	3,027	3,038	3,061	3,074	3,096	3,123	3,137
Engineering and architectural services	839	878	862	866	869	869	877	878	881	886	891	893	901	909	914
Management and public relations	873	952	919	923	936	941	950	959	968	969	976	979	993	1,007	1,013
Government	19,447	19,654	19,547	19,545	19,579	19,565	19,639	19,719	19,804	19,714	19,749	19,763	19,770	19,775	19,811
Federal	2,757	2,700	2,716	2,709	2,708	2,703	2,694	2,689	2,690	2,680	2,687	2,694	2,689	2,675	2,680
Federal, except Postal Service	1,901	1,842	1,861	1,856	1,856	1,851	1,843	1,839	1,830	1,824	1,832	1,826	1,818	1,826	1,825
State	4,624	4,648	4,624	4,622	4,635	4,636	4,640	4,671	4,664	4,662	4,663	4,673	4,665	4,662	4,671
Education	1,924	1,951	1,931	1,929	1,938	1,943	1,950	1,972	1,961	1,962	1,962	1,967	1,964	1,959	1,968
Other State government	2,700	2,697	2,693	2,693	2,697	2,693	2,690	2,699	2,703	2,700	2,701	2,706	2,701	2,703	2,703
Local	12,066	12,307	12,207	12,214	12,236	12,226	12,305	12,359	12,450	12,372	12,399	12,396	12,416	12,438	12,460
Education	6,748	6,912	6,849	6,853	6,858	6,850	6,902	6,954	7,030	6,957	6,963	6,964	6,965	6,980	6,992
Other local government	5,318	5,395	5,358	5,361	5,378	5,376	5,403	5,405	5,420	5,415	5,436	5,432	5,451	5,458	5,468

[1] Includes other industries not shown separately.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

13. Average weekly hours of production or nonsupervisory workers on private nonfarm payrolls, by industry, monthly data seasonally adjusted

Industry	Annual average		1997											1998	
	1996	1997[P]	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]
PRIVATE SECTOR	34.4	34.6	34.8	34.8	34.5	34.5	34.6	34.4	34.6	34.5	34.5	34.8	34.6	34.8	34.9
GOODS-PRODUCING	41.1	41.3	41.2	41.4	41.4	41.4	41.1	41.2	41.1	41.2	41.3	41.2	41.4	41.6	41.4
MINING	45.3	45.4	45.8	45.9	45.3	46.0	45.4	45.4	45.5	45.1	45.2	45.6	45.0	45.5	45.2
MANUFACTURING	41.6	42.0	41.9	42.1	42.1	42.0	41.8	41.8	41.8	41.9	42.0	42.1	42.2	42.1	42.0
Overtime hours	4.4	4.8	4.7	4.9	4.9	4.8	4.6	4.7	4.7	4.7	4.8	4.9	4.9	4.9	4.7
Durable goods	42.4	42.8	42.7	42.9	43.0	42.8	42.6	42.6	42.7	42.6	42.8	42.9	43.0	42.8	42.7
Overtime hours	4.7	5.1	5.0	5.2	5.3	5.2	5.0	5.0	5.0	5.0	5.1	5.2	5.2	5.2	5.0
Lumber and wood products	40.8	41.0	40.8	41.0	41.2	41.0	41.0	41.1	40.8	40.9	41.1	41.2	41.0	41.2	41.1
Furniture and fixtures	39.4	40.2	39.9	40.3	40.1	40.4	39.9	40.0	40.0	40.2	40.0	40.5	40.7	41.3	41.5
Stone, clay, and glass products	43.3	43.2	43.3	43.1	43.0	43.4	42.9	43.1	43.0	43.1	43.1	42.9	43.9	43.9	43.7
Primary metal industries	44.2	44.9	44.6	44.8	45.1	44.8	44.7	44.4	45.0	44.9	45.1	45.3	45.3	45.3	44.9
Blast furnaces and basic steel products	44.5	44.9	44.6	44.8	45.2	44.7	44.5	44.3	45.2	45.1	45.3	45.3	45.5	46.2	46.0
Fabricated metal products	42.4	42.7	42.5	42.6	42.9	42.6	42.4	42.4	42.3	42.4	42.6	42.6	42.9	42.7	42.6
Industrial machinery and equipment	43.1	43.6	43.4	43.5	43.9	43.6	43.3	43.4	43.4	43.4	43.4	43.8	43.6	43.6	43.3
Electronic and other electrical equipment	41.5	42.0	41.9	42.1	42.3	42.0	42.0	42.0	41.7	41.7	41.8	42.0	42.0	41.8	41.6
Transportation equipment	44.0	44.5	44.6	45.0	44.8	44.5	44.2	43.7	44.3	43.9	44.4	44.0	44.7	43.8	43.6
Motor vehicles and equipment	44.9	45.0	45.3	45.7	45.3	45.2	44.8	44.0	44.7	44.1	45.0	44.3	45.0	43.7	43.6
Instruments and related products	41.7	42.0	42.1	42.0	41.9	41.9	41.8	41.7	42.3	42.0	41.9	42.2	41.8	41.7	41.9
Miscellaneous manufacturing	39.7	40.4	40.5	40.2	40.5	40.3	40.1	40.4	40.2	40.3	40.2	40.5	40.7	40.2	40.7
Nondurable goods	40.5	40.9	40.8	40.9	40.9	40.8	40.6	40.6	40.7	40.9	40.8	41.1	41.1	41.1	40.9
Overtime hours	4.0	4.4	4.3	4.4	4.4	4.3	4.1	4.3	4.2	4.3	4.4	4.5	4.5	4.4	4.3
Food and kindred products	41.0	41.3	41.3	41.3	41.1	41.4	40.9	41.1	41.0	41.2	41.2	41.6	41.7	41.8	41.3
Textile mill products	40.6	41.4	40.9	41.2	41.7	41.4	41.2	41.3	41.2	41.4	41.3	41.5	41.7	41.6	41.5
Apparel and other textile products	37.0	37.4	37.2	37.5	37.5	37.1	37.4	36.9	37.1	37.3	37.2	37.1	37.5	37.6	37.3
Paper and allied products	43.3	43.7	43.7	43.8	43.9	43.8	43.4	43.5	43.4	43.7	43.7	44.1	43.8	43.6	43.4
Printing and publishing	38.2	38.5	38.5	38.6	38.5	38.3	38.3	38.4	38.3	38.7	38.7	38.8	38.6	38.5	38.4
Chemicals and allied products	43.2	43.2	43.3	43.3	43.1	43.3	43.1	43.0	43.3	43.4	43.2	43.4	43.1	43.5	43.6
Rubber and miscellaneous plastics products	41.5	41.8	41.7	41.8	42.0	41.6	41.5	41.7	41.7	41.6	41.8	42.2	42.1	42.0	41.8
Leather and leather products	38.1	38.4	38.9	38.7	38.5	38.2	38.1	38.4	38.0	38.4	38.6	38.0	38.3	38.4	38.9
SERVICE-PRODUCING	32.7	32.8	33.0	33.0	32.7	32.7	32.9	32.7	32.9	32.8	32.8	33.1	32.8	33.0	33.2
TRANSPORTATION AND PUBLIC UTILITIES	39.6	39.7	39.7	39.8	39.3	39.5	39.6	39.0	40.1	39.9	39.8	40.2	39.7	39.9	40.1
WHOLESALE TRADE	38.3	38.4	38.6	38.6	38.4	38.4	38.5	38.3	38.4	38.3	38.3	38.7	38.2	38.4	38.7
RETAIL TRADE	28.8	28.9	29.1	29.1	28.9	28.9	28.9	28.8	29.1	28.8	23.9	28.9	28.9	29.0	29.1

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

14. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry, seasonally adjusted

Industry	Annual average		1997											1997	
	1996	1997[P]	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]
PRIVATE SECTOR (in current dollars)	$ 11.81	$ 12.26	$12.10	$12.14	$12.14	$12.19	$12.23	$12.24	$12.31	$12.35	$12.40	$12.48	$ 12.48	$12.52	$12.60
Goods-producing	13.47	13.91	13.76	13.79	13.80	13.85	13.86	13.86	13.94	13.97	14.07	14.11	14.17	14.15	14.22
Mining	15.61	16.14	15.96	15.94	15.96	16.05	16.12	16.10	16.07	16.20	16.27	16.43	16.41	16.40	16.44
Construction	15.46	16.00	15.79	15.80	15.86	15.91	15.95	15.96	16.03	16.08	16.12	16.22	16.36	16.24	16.36
Manufacturing	12.78	13.17	13.03	13.07	13.07	13.11	13.12	13.11	13.20	13.22	13.35	13.37	13.39	13.37	13.43
Excluding overtime	12.12	12.46	12.35	12.37	12.38	12.38	12.42	12.41	12.50	12.51	12.60	12.63	12.64	12.64	12.70
Service-producing	11.25	11.71	11.54	11.59	11.58	11.63	11.69	11.70	11.77	11.81	11.85	11.94	11.92	11.97	12.06
Transportation and public utilities	14.44	14.89	14.64	14.73	14.76	14.80	14.85	14.95	15.01	14.95	15.01	15.05	15.09	15.28	15.26
Wholesale trade	12.87	13.43	13.23	13.30	13.27	13.33	13.42	13.38	13.54	13.54	13.57	13.73	13.69	13.68	13.82
Retail trade	7.99	8.34	8.21	8.25	8.26	8.28	8.30	8.32	8.36	8.42	8.46	8.50	8.51	8.56	8.59
Finance, insurance, and real estate	12.79	13.31	13.08	13.12	13.00	13.18	13.29	13.30	13.49	13.47	13.54	13.64	13.59	13.63	13.82
Services	11.79	12.28	12.12	12.16	12.16	12.20	12.26	12.26	12.33	12.36	12.41	12.50	12.48	12.52	12.61
PRIVATE SECTOR (in constant (1982) dollars)	7.43	7.54	7.47	7.49	7.49	7.52	7.54	7.53	7.56	7.56	7.58	7.62	7.62	7.64	–

– Data not available.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1997											1998	
	1996	1997[P]	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]
PRIVATE SECTOR	$ 11.81	$ 12.26	$12.14	$12.17	$12.17	$12.17	$12.17	$12.15	$12.21	$12.39	$12.43	$12.51	$12.51	$12.59	$12.64
MINING	15.61	16.14	16.06	15.98	16.05	15.98	16.11	16.03	15.94	16.23	16.19	16.38	16.49	16.59	16.56
CONSTRUCTION	15.46	16.00	15.69	15.67	15.75	15.83	15.88	16.00	16.09	16.27	16.30	16.25	16.34	16.24	16.23
MANUFACTURING	12.78	13.17	13.02	13.08	13.09	13.09	13.10	13.11	13.15	13.24	13.29	13.37	13.48	13.40	13.42
Durable goods	13.34	13.74	13.58	13.64	13.64	13.64	13.66	13.62	13.71	13.81	13.89	13.97	14.08	13.96	13.96
Lumber and wood products	10.44	10.76	10.60	10.60	10.64	10.71	10.77	10.82	10.80	10.86	10.86	10.90	10.93	10.87	10.90
Furniture and fixtures	10.15	10.55	10.34	10.43	10.42	10.47	10.51	10.53	10.59	10.70	10.67	10.70	10.79	10.75	10.75
Stone, clay, and glass products	12.82	13.18	13.05	13.03	13.06	13.12	13.13	13.20	13.21	13.27	13.32	13.36	13.40	13.39	13.45
Primary metal industries	14.97	15.22	15.09	15.16	15.15	15.09	15.16	15.28	15.17	15.27	15.34	15.39	15.43	15.45	15.37
Blast furnaces and basic steel products	17.79	17.99	17.73	17.86	17.88	17.84	17.99	18.09	17.97	18.26	18.22	18.25	18.12	18.28	18.16
Fabricated metal products	12.52	12.83	12.75	12.78	12.80	12.78	12.77	12.69	12.79	12.85	12.90	12.97	13.08	13.00	12.99
Industrial machinery and equipment	13.59	14.06	13.88	13.93	13.94	13.92	13.95	14.01	14.02	14.18	14.22	14.29	14.40	14.31	14.32
Electronic and other electrical equipment	12.18	12.70	12.42	12.49	12.55	12.56	12.59	12.69	12.75	12.85	12.91	13.00	13.13	13.00	12.98
Transportation equipment	17.20	17.60	17.40	17.51	17.48	17.47	17.45	17.23	17.47	17.60	17.92	17.98	18.13	17.79	17.81
Motor vehicles and equipment	17.75	18.09	17.88	18.01	18.01	17.97	17.92	17.54	17.86	18.05	18.50	18.57	18.69	18.27	18.34
Instruments and related products	13.14	13.55	13.39	13.47	13.47	13.52	13.55	13.54	13.52	13.66	13.63	13.70	13.73	13.67	13.71
Miscellaneous manufacturing	10.38	10.60	10.56	10.56	10.53	10.52	10.50	10.52	10.57	10.65	10.65	10.72	10.81	10.81	10.80
Nondurable goods	11.97	12.34	12.19	12.25	12.27	12.27	12.27	12.37	12.33	12.40	12.40	12.48	12.58	12.57	12.59
Food and kindred products	11.20	11.49	11.32	11.40	11.45	11.48	11.45	11.52	11.51	11.51	11.45	11.60	11.72	11.67	11.68
Tobacco products	19.34	19.20	18.52	19.40	20.32	20.76	21.10	20.95	19.78	18.19	17.95	17.78	18.59	18.41	18.19
Textile mill products	9.69	10.02	9.89	9.92	9.94	9.94	9.97	10.01	10.01	10.09	10.10	10.15	10.24	10.25	10.25
Apparel and other textile products	7.96	8.25	8.19	8.24	8.21	8.23	8.25	8.20	8.23	8.33	8.32	8.33	8.42	8.42	8.38
Paper and allied products	14.67	15.06	14.78	14.93	15.00	14.98	14.99	15.18	15.13	15.19	15.19	15.24	15.29	15.19	15.21
Printing and publishing	12.65	13.06	12.90	13.01	12.99	12.93	12.90	13.01	13.07	13.22	13.20	13.25	13.30	13.27	13.32
Chemicals and allied products	16.17	16.58	16.49	16.42	16.42	16.47	16.54	16.59	16.57	16.63	16.65	16.85	16.91	16.90	16.97
Petroleum and coal products	19.32	20.20	20.42	20.51	19.97	19.98	19.94	20.02	19.99	20.25	20.29	20.40	20.56	20.96	21.30
Rubber and miscellaneous plastics products	11.24	11.57	11.45	11.50	11.53	11.50	11.53	11.57	11.57	11.65	11.64	11.65	11.77	11.73	11.72
Leather and leather products	8.56	8.95	8.91	8.86	8.87	8.89	8.91	8.75	8.87	9.07	9.13	9.10	9.18	9.27	9.21
TRANSPORTATION AND PUBLIC UTILITIES	14.44	14.89	14.66	14.70	14.77	14.72	14.78	14.95	15.00	15.01	15.04	15.14	15.12	15.24	15.26
WHOLESALE TRADE	12.87	13.43	13.26	13.28	13.33	13.32	13.36	13.37	13.47	13.52	13.56	13.74	13.71	13.77	13.86
RETAIL TRADE	7.99	8.34	8.24	8.27	8.28	8.27	8.27	8.27	8.29	8.45	8.47	8.51	8.51	8.62	8.62
FINANCE, INSURANCE, AND REAL ESTATE	12.79	13.31	13.15	13.20	13.09	13.18	13.23	13.18	13.35	13.45	13.53	13.69	13.61	13.67	13.90
SERVICES	11.79	12.28	12.24	12.24	12.20	12.17	12.15	12.07	12.12	12.36	12.42	12.58	12.61	12.67	12.74

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1997											1998	
	1996	1997[p]	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
PRIVATE SECTOR															
Current dollars	$406.26	$424.20	$418.83	$421.08	$418.65	$419.87	$424.73	$421.61	$427.35	$429.93	$430.08	$435.35	$434.10	$430.58	$437.34
Seasonally adjusted	–	–	421.08	422.47	418.83	420.56	423.16	421.06	425.93	426.08	427.80	434.30	431.81	435.70	439.74
Constant (1982) dollars	255.51	260.89	258.86	259.93	258.11	258.86	261.53	259.45	262.50	263.12	262.89	266.11	265.83	–	–
MINING	707.13	732.76	732.34	730.29	723.86	731.88	737.84	724.56	726.86	740.09	735.03	748.57	747.00	746.55	746.86
CONSTRUCTION	602.94	622.40	588.38	601.73	609.53	628.45	627.26	641.60	638.77	650.80	647.11	614.25	627.46	605.75	615.12
MANUFACTURING															
Current dollars	531.65	553.14	541.63	549.36	547.16	548.47	550.20	540.13	552.30	561.38	560.84	569.56	579.64	561.46	558.27
Constant (1982) dollars	334.37	340.18	334.75	339.11	337.34	338.14	338.79	332.39	339.25	343.56	342.81	348.14	354.95	–	–
Durable goods	565.62	588.07	577.15	585.16	582.43	583.79	584.65	570.68	585.42	595.21	597.27	604.90	618.11	594.70	591.90
Lumber and wood products	425.95	441.16	426.12	431.42	438.37	442.32	446.96	441.46	446.04	450.69	450.69	451.26	450.32	435.89	440.36
Furniture and fixtures	399.91	424.11	403.26	416.16	411.59	416.71	419.35	415.94	428.90	439.77	434.27	440.84	454.26	437.53	435.38
Stone, clay, and glass products	555.11	569.38	548.10	553.78	560.27	573.34	572.47	571.56	578.60	586.53	584.75	575.82	585.58	565.06	571.63
Primary metal industries	661.67	683.38	673.01	679.17	677.21	674.52	679.17	670.79	678.10	691.73	691.83	700.25	711.32	699.89	690.11
Blast furnaces and basic steel products	791.66	807.75	787.21	798.34	802.81	797.45	802.35	801.39	805.06	825.35	819.90	830.38	833.52	842.71	833.54
Fabricated metal products	530.85	547.84	539.33	543.15	542.72	543.15	544.00	527.90	543.58	552.55	553.41	561.60	575.52	553.80	549.48
Industrial machinery and equipment	585.73	613.02	603.78	610.13	607.78	605.52	605.43	599.63	604.26	619.67	615.73	628.76	645.12	625.35	622.92
Electronic and other electrical equipment	505.47	533.40	519.16	527.08	524.59	523.75	528.78	522.83	531.68	540.99	540.93	553.80	565.90	542.10	537.37
Transportation equipment	756.80	783.20	770.82	787.95	781.36	780.91	778.27	730.55	773.92	781.44	799.23	800.11	828.54	779.20	772.95
Motor vehicles and equipment	769.98	814.05	804.60	824.86	817.65	817.64	811.78	740.19	798.34	806.84	834.35	831.94	865.35	798.40	795.96
Instruments and related products	547.94	569.10	562.38	568.43	561.70	563.78	567.75	557.85	569.19	575.09	571.10	583.62	589.02	571.41	574.45
Miscellaneous manufacturing	412.09	428.24	423.46	425.57	423.31	420.80	421.05	415.54	425.97	434.52	464.52	441.66	446.45	431.32	434.16
Nondurable goods	484.79	504.71	492.48	498.58	496.94	498.16	499.39	499.75	504.30	513.36	509.64	517.92	525.84	514.11	509.90
Food and kindred products	459.20	474.54	460.72	463.98	462.58	471.83	467.16	473.47	479.97	486.87	478.61	489.52	496.93	481.97	476.54
Tobacco products	773.60	746.88	724.13	758.54	780.29	803.41	827.12	739.54	747.68	716.69	712.62	702.31	745.46	694.06	680.31
Textile mill products	393.41	414.83	398.57	408.70	410.52	409.53	415.75	406.41	416.42	423.78	418.14	425.29	431.10	424.35	419.23
Apparel and other textile products	294.52	308.55	302.21	309.00	305.41	306.16	311.85	300.12	307.80	313.21	312.83	131.21	320.80	314.07	310.06
Paper and allied products	635.21	658.12	639.97	649.46	651.00	650.13	650.57	657.29	656.64	669.88	665.32	676.66	681.93	663.80	654.03
Printing and publishing	483.23	502.81	491.49	503.49	497.52	492.63	490.20	495.68	504.50	518.22	513.48	519.40	521.36	504.26	507.49
Chemicals and allied products	698.54	716.26	710.72	709.34	706.06	709.86	712.87	708.39	712.51	723.41	720.95	736.35	744.04	733.46	736.50
Petroleum and coal products	842.35	870.62	886.23	881.93	846.73	847.15	855.43	854.85	859.57	876.83	878.56	885.36	869.69	941.10	924.42
Rubber and miscellaneous plastics products	466.46	483.63	475.18	480.70	480.80	479.55	480.80	474.37	482.47	489.30	487.72	495.13	506.11	492.66	487.55
Leather and leather products	326.14	343.68	336.80	341.11	337.95	339.60	345.71	330.75	340.61	353.73	352.42	350.35	356.18	350.41	349.98
TRANSPORTATION AND PUBLIC UTILITIES	571.82	591.13	579.07	580.65	578.98	578.50	588.24	589.03	607.50	603.40	598.59	610.14	601.78	598.93	608.87
WHOLESALE TRADE	492.92	515.71	510.51	511.28	510.54	512.82	517.03	512.07	518.60	519.17	520.70	531.74	526.46	524.64	535.00
RETAIL TRADE	230.11	241.03	236.49	237.35	236.81	238.18	243.14	244.50	246.21	245.05	243.94	245.09	248.49	242.22	247.39
FINANCE, INSURANCE, AND REAL ESTATE	459.16	480.49	482.61	481.80	469.93	473.16	484.22	471.84	481.94	481.51	485.73	502.42	488.60	493.49	514.30
SERVICES	382.00	400.33	400.25	399.02	395.28	394.31	398.52	395.90	398.75	401.70	404.89	412.62	411.09	410.51	417.87

– Data not available.

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

17. Diffusion indexes of employment change, seasonally adjusted

[In percent]

Timespan and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.
	Private nonfarm payrolls, 356 industries											
Over 1-month span:												
1995	62.4	60.1	54.5	55.6	48.0	53.9	54.1	59.8	57.0	54.9	57.2	57.9
1996	51.7	64.3	60.1	54.9	62.9	60.5	56.5	59.3	54.4	62.6	58.1	61.0
1997	59.3	59.1	59.0	61.1	57.4	50.7	58.8	58.7	56.5	64.2	61.7	61.4
1998	64.2	57.3	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
1995	65.4	62.5	58.7	53.2	54.6	52.4	57.9	59.6	59.7	59.0	57.0	56.3
1996	62.6	63.6	62.6	61.2	62.1	63.1	62.6	58.8	62.8	60.4	64.7	65.0
1997	64.6	62.2	64.2	65.6	59.7	58.7	59.1	65.0	65.3	67.3	68.4	69.8
1998	66.6	–	–	–	–	–	–	–	–	–	–	–
Over 6-month span:												
1995	66.9	61.4	58.1	56.6	58.1	58.1	56.7	59.8	60.3	59.1	61.5	63.3
1996	62.2	63.5	63.5	63.5	62.6	61.2	65.3	63.6	62.6	64.5	64.2	67.4
1997	67.6	66.6	64.5	64.6	64.3	66.7	67.0	68.3	70.2	72.1	72.3	–
Over 12-month span:												
1995	63.6	62.4	62.6	63.3	61.7	61.9	58.7	62.2	62.2	61.1	62.2	63.3
1996	63.5	64.7	62.4	62.9	64.7	64.2	65.0	63.1	63.8	66.7	65.7	65.0
1997	67.3	66.2	69.4	70.4	70.1	69.5	70.5	71.5	–	–	–	–
	Manufacturing payrolls, 139 industries											
Over 1-month span:												
1995	54.3	56.1	44.2	51.4	42.1	42.8	43.5	52.2	47.1	50.0	47.5	50.7
1996	45.7	54.3	47.8	39.2	52.2	52.2	44.2	52.9	44.2	50.7	49.6	52.2
1997	54.0	50.4	52.9	52.9	51.4	49.3	51.8	49.6	54.3	57.6	59.4	57.2
1998	60.4	46.8	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
1995	59.7	50.4	47.5	40.3	42.4	36.3	38.5	43.9	49.3	46.4	45.3	43.9
1996	47.5	47.8	42.1	38.5	43.2	45.0	48.9	43.2	50.4	46.4	52.5	52.5
1997	53.2	51.4	50.7	52.5	48.6	48.9	48.6	53.6	55.8	62.9	64.0	68.3
1998	61.2	–	–	–	–	–	–	–	–	–	–	–
Over 6-month span:												
1995	55.8	48.6	43.9	38.8	39.2	39.6	38.8	39.6	43.9	45.0	44.2	44.6
1996	41.4	41.7	41.0	38.1	39.6	40.6	47.5	46.8	45.3	50.4	48.2	53.2
1997	53.2	53.2	50.4	49.3	48.6	52.2	55.0	58.3	60.8	65.8	67.6	–
Over 12-month span:												
1995	46.0	44.2	46.0	47.8	41.0	41.7	38.5	38.8	36.3	37.4	38.1	39.9
1996	39.6	42.8	39.2	39.6	42.4	40.3	43.5	40.3	43.5	46.8	46.4	47.1
1997	51.4	47.8	52.2	55.0	57.6	55.8	56.5	58.6	–	–	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

18. Annual data: Employment status of the population

[Numbers in thousands]

Employment status	1989	1990	1991	1992	1993	1994	1995	1996	1997
Civilian noninstitutional population	186,393	189,164	190,925	192,805	194,838	196,814	198,584	200,591	203,133
Civilian labor force	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943	136,297
Labor force participation rate	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8	67.1
Employed	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558
Employment-population ratio	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2	63.8
Agriculture	3,199	3,223	3,269	3,247	3,115	3,409	3,440	3,443	3,399
Nonagricultural industries	114,142	115,570	114,499	115,245	117,144	119,651	121,460	123,264	126,159
Unemployed	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236	6,739
Unemployment rate	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4	4.9
Not in the labor force	62,523	63,324	64,578	64,700	65,638	65,758	66,280	66,647	66,837

19. Annual data: Employment levels by industry

[In thousands]

Industry	1989	1990	1991	1992	1993	1994	1995	1996	1997[P]
Total employment	107,895	109,419	108,256	108,604	110,730	114,172	117,191	119,523	122,259
Private sector	90,117	91,115	89,854	89,959	91,889	95,044	97,885	100,076	102,605
Goods-producing	25,254	24,905	23,745	23,231	23,352	23,908	24,265	24,431	24,739
Mining	692	709	689	635	610	601	581	574	574
Construction	5,171	5,120	4,650	4,492	4,668	4,986	5,160	5,400	5,629
Manufacturing	19,391	19,076	18,406	18,104	18,075	18,321	18,524	18,457	18,537
Service-producing	82,642	84,514	84,511	85,373	87,378	90,264	92,925	95,092	97,520
Transportation and public utilities	5,625	5,793	5,762	5,721	5,829	5,993	6,132	6,261	6,425
Wholesale trade	6,187	6,173	6,081	5,997	5,981	6,162	6,378	6,483	6,657
Retail trade	19,475	19,601	19,284	19,356	19,773	20,507	21,187	21,625	22,136
Finance, insurance, and real estate	6,668	6,709	6,646	6,602	6,757	6,896	6,806	6,899	7,053
Services	26,907	27,934	28,336	29,052	30,197	31,579	33,117	34,377	35,595
Government	17,779	18,304	18,402	18,645	18,841	19,128	19,305	19,447	19,654
Federal	2,988	3,085	2,966	2,969	2,915	2,870	2,822	2,757	2,700
State	4,182	4,305	4,355	4,408	4,488	4,576	4,635	4,624	4,648
Local	10,609	10,914	11,081	11,267	11,438	11,682	11,849	12,066	12,307

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

20. Annual data: Average hours and earnings of production or nonsupervisory workers on nonfarm payrolls, by industry

Industry	1989	1990	1991	1992	1993	1994	1995	1996	1997[P]
Private sector:									
Average weekly hours	34.6	34.5	34.3	34.4	34.5	34.7	34.5	34.4	34.6
Average hourly earnings (in dollars)	9.66	10.01	10.32	10.57	10.83	11.12	11.43	11.81	12.26
Average weekly earnings (in dollars)	334.24	345.35	353.98	363.61	373.64	385.86	394.34	406.26	424.20
Mining:									
Average weekly hours	43.0	44.1	44.4	43.9	44.3	44.8	44.7	45.3	45.4
Average hourly earnings (in dollars)	13.26	13.68	14.19	14.54	14.60	14.88	15.30	15.61	16.14
Average weekly earnings (in dollars)	570.18	603.29	630.04	638.31	646.78	666.62	683.91	707.13	732.76
Construction:									
Average weekly hours	37.9	38.2	38.1	38.0	38.5	38.9	38.9	39.0	38.9
Average hourly earnings (in dollars)	13.54	13.77	14.00	14.15	14.38	14.73	15.09	15.46	16.00
Average weekly earnings (in dollars)	513.17	526.01	533.40	537.70	553.63	573.00	587.00	602.94	622.40
Manufacturing:									
Average weekly hours	41.0	40.8	40.7	41.0	41.4	42.0	41.6	41.6	42.0
Average hourly earnings (in dollars)	10.48	10.83	11.18	11.46	11.74	12.07	12.37	12.78	13.17
Average weekly earnings (in dollars)	429.68	441.86	455.03	469.86	486.04	506.94	514.59	531.65	553.14
Transportation and public utilities:									
Average weekly hours	38.9	38.9	38.7	38.9	39.6	39.9	39.4	39.6	39.7
Average hourly earnings (in dollars)	12.60	12.97	13.22	13.45	13.62	13.86	14.13	14.44	14.89
Average weekly earnings (in dollars)	490.14	504.53	511.61	523.21	539.35	553.01	556.72	571.82	591.13
Wholesale trade:									
Average weekly hours	38.0	38.1	38.1	38.2	38.2	38.4	38.3	38.3	38.4
Average hourly earnings (in dollars)	10.39	10.79	11.15	11.39	11.74	12.06	12.43	12.87	13.43
Average weekly earnings (in dollars)	394.82	411.10	424.82	435.10	448.47	463.10	476.07	492.92	515.71
Retail trade:									
Average weekly hours	28.9	28.8	28.6	28.8	28.8	28.9	28.8	28.8	28.9
Average hourly earnings (in dollars)	6.53	6.75	6.94	7.12	7.29	7.49	7.69	7.99	8.34
Average weekly earnings (in dollars)	188.72	194.40	198.48	205.06	209.95	216.46	221.47	230.11	241.03
Finance, insurance, and real estate:									
Average weekly hours	35.8	35.8	35.7	35.8	35.8	35.8	35.9	35.9	36.1
Average hourly earnings (in dollars)	9.53	9.97	10.39	10.82	11.35	11.83	12.32	12.79	13.31
Average weekly earnings (in dollars)	341.17	356.93	370.92	387.36	406.33	423.51	442.29	459.16	480.49
Services:									
Average weekly hours	32.6	32.5	32.4	32.5	32.5	32.5	32.4	32.4	32.6
Average hourly earnings (in dollars)	9.38	9.83	10.23	10.54	10.78	11.04	11.39	11.79	12.28
Average weekly earnings (in dollars)	305.79	319.48	331.45	342.55	350.35	358.80	369.04	382.00	400.33

21. Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Civilian workers[2]	127.2	128.3	129.2	130.2	130.9	132.0	132.8	134.1	135.2	0.8	3.3
Workers, by occupational group:											
White-collar workers	128.0	129.1	130.0	131.3	131.9	133.1	133.9	135.2	136.5	1.0	3.5
Professional specialty and technical	129.4	130.6	131.4	132.6	133.1	133.7	134.6	135.8	136.7	.7	2.7
Executive, administrative, and managerial	127.4	128.5	129.1	131.1	131.5	133.2	134.0	135.3	137.3	1.5	4.4
Administrative support, including clerical	129.0	130.1	130.8	132.0	132.6	133.6	134.6	135.8	136.9	.8	3.2
Blue-collar workers	125.8	126.7	127.7	128.3	129.1	129.8	130.9	131.8	132.4	.5	2.6
Service occupations	127.4	128.0	128.7	129.7	131.0	132.0	132.7	134.6	135.6	.7	3.5
Workers, by industry division:											
Goods-producing	127.4	128.3	129.3	130.1	130.9	131.5	132.7	133.6	134.1	.4	2.4
Manufacturing	128.3	129.3	130.4	131.3	132.1	132.6	133.8	134.6	135.3	.5	2.4
Service-producing	127.1	128.2	129.1	130.2	130.9	132.1	132.9	134.2	135.5	1.0	3.5
Services	129.4	130.4	131.2	132.5	133.2	134.1	134.9	136.5	137.6	.8	3.3
Health services	132.0	132.5	133.4	134.1	134.4	135.2	135.7	136.7	137.9	.9	2.6
Hospitals	131.4	132.3	132.9	133.6	133.8	134.2	134.6	135.6	136.7	.8	2.2
Educational services	130.2	130.5	130.8	133.2	133.9	134.0	134.2	136.5	137.0	.4	2.3
Public administration[3]	128.3	129.2	129.6	130.7	131.8	133.0	133.0	134.1	135.1	.7	2.5
Nonmanufacturing	126.8	127.9	128.8	129.8	130.5	131.7	132.5	133.8	135.1	1.0	3.5
Private industry workers	126.7	127.9	129.0	129.8	130.6	131.7	132.8	133.9	135.1	.9	3.4
Excluding sales occupations	127.1	128.3	129.2	130.2	130.8	131.9	133.0	134.1	135.2	.8	3.4
Workers, by occupational group:											
White-collar workers	127.6	129.0	130.0	131.1	131.7	133.1	134.1	135.2	136.7	1.1	3.8
Excluding sales occupations	128.6	129.9	130.7	132.0	132.5	133.7	134.8	135.9	137.4	1.1	3.7
Professional specialty and technical occupations	129.9	131.6	132.6	133.3	133.7	134.6	135.9	136.7	137.8	.8	3.1
Executive, administrative, and managerial occupations	126.9	128.0	128.8	130.9	131.3	133.0	133.9	135.2	137.4	1.6	4.6
Sales occupations	123.2	124.8	126.9	126.7	128.1	130.1	130.7	132.2	133.5	1.0	4.2
Administrative support occupations, including clerical	129.0	130.1	130.8	132.0	132.5	133.7	134.7	135.9	137.0	.8	3.4
Blue-collar workers	125.6	126.6	127.6	128.1	129.0	129.6	130.8	131.7	132.3	.5	2.6
Precision production, craft, and repair occupations	125.7	126.5	127.7	128.2	129.1	129.6	130.9	131.7	131.9	.2	2.2
Machine operators, assemblers, and inspectors	126.2	127.1	128.1	128.7	129.5	130.0	131.2	132.2	133.0	.6	2.7
Transportation and material moving occupations	123.0	123.9	124.7	124.9	125.2	126.1	126.8	128.0	128.9	.7	3.0
Handlers, equipment cleaners, helpers, and laborers	126.8	128.5	129.3	130.0	131.3	132.8	133.4	134.2	135.8	1.2	3.4
Service occupations	125.2	125.8	126.5	127.4	128.9	129.8	130.9	133.1	134.1	.8	4.0
Production and nonsupervisory occupations[4]	126.3	127.5	128.6	129.2	130.0	131.1	132.1	133.2	134.2	.8	3.2
Workers, by industry division:											
Goods-producing	127.3	128.2	129.3	130.1	130.9	131.4	132.7	133.6	134.1	.4	2.4
Excluding sales occupations	127.0	128.0	129.0	129.8	130.5	131.1	132.3	133.1	133.6	.4	2.4
White-collar occupations	129.0	130.0	131.0	132.2	132.9	133.5	134.8	135.6	136.2	.4	2.5
Excluding sales occupations	128.2	129.4	130.2	131.5	132.1	132.6	133.8	134.5	135.0	.4	2.2
Blue-collar occupations	126.3	127.1	128.3	128.9	129.6	130.2	131.4	132.4	132.8	.3	2.5
Construction	123.4	124.3	125.3	125.9	126.4	127.2	128.7	129.7	129.7	.0	2.6
Manufacturing	128.3	129.3	130.4	131.3	132.1	132.6	133.8	134.6	135.3	.5	2.4
White-collar occupations	129.5	130.5	131.6	132.8	133.6	133.9	135.2	135.8	136.7	.7	2.3
Excluding sales occupations	128.3	129.5	130.5	131.8	132.5	132.8	133.8	134.5	135.3	.6	2.1
Blue-collar occupations	127.5	128.4	129.5	130.2	131.1	131.7	132.8	133.7	134.3	.4	2.4
Durables	129.0	129.7	131.2	131.9	132.6	133.0	134.1	135.0	135.7	.5	2.3
Nondurables	127.0	128.3	128.9	130.0	131.0	131.7	133.0	133.7	134.5	.6	2.7
Service-producing	126.2	127.6	128.6	129.5	130.2	131.6	132.5	133.8	135.3	1.1	3.9
Excluding sales occupations	127.2	128.4	129.2	130.3	130.9	132.2	133.3	134.5	136.1	1.2	4.0
White-collar occupations	127.1	128.5	129.6	130.6	131.1	132.7	133.7	134.9	136.8	1.3	4.2
Excluding sales occupations	128.7	130.0	130.9	132.2	132.6	134.0	135.1	136.3	138.1	1.3	4.1
Blue-collar occupations	124.0	125.2	126.0	126.4	127.3	128.2	129.2	130.0	130.9	.7	2.8
Service occupations	124.8	125.3	126.1	127.1	128.6	129.5	130.6	132.7	133.9	.9	4.1
Transportation and public utilities	126.6	127.9	128.4	129.3	130.4	131.3	131.7	132.9	134.2	1.0	2.9
Transportation	125.1	126.9	127.7	128.2	129.2	130.6	130.9	132.1	133.4	1.0	3.3
Public utilities	128.5	128.9	129.1	130.4	131.7	132.0	132.5	133.7	135.1	1.0	2.6
Communications	128.3	128.0	127.5	129.1	131.1	130.2	130.5	131.8	134.0	1.7	2.2
Electric, gas, and sanitary services	128.7	130.1	131.1	132.0	132.4	134.2	134.9	136.0	136.4	.3	3.0
Wholesale and retail trade	124.2	125.5	126.4	127.5	128.6	130.1	131.2	132.4	132.9	.4	3.3
Excluding sales occupations	125.0	125.9	126.4	128.0	129.0	130.4	131.9	133.0	134.0	.8	3.9
Wholesale trade	127.0	127.5	129.3	129.9	130.9	132.9	133.8	134.6	135.1	.4	3.2
Excluding sales occupations	127.1	127.4	128.7	130.0	130.9	132.6	133.7	134.5	135.4	.7	3.4
Retail trade	122.7	124.5	124.8	126.2	127.4	128.5	129.7	131.1	131.7	.5	3.4
Food stores	122.4	123.6	124.4	127.0	128.4	128.2	128.2	129.8	129.4	–.3	.8
General merchandise stores	121.7	122.4	123.6	124.6	126.3	126.4	127.7	128.6	130.0	1.1	2.9

See footnotes at end of table.

21. Continued—Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Finance, insurance, and real estate	123.1	124.5	126.3	126.7	126.0	128.6	129.4	130.5	134.5	3.1	6.7
Excluding sales occupations	125.7	127.5	128.5	129.7	129.2	131.5	132.4	133.5	137.6	3.1	6.5
Banking, savings and loan, and other credit agencies	124.4	126.9	128.2	130.3	128.0	130.6	131.6	133.1	140.6	5.6	9.8
Insurance	125.9	127.6	128.2	129.3	129.6	131.9	132.1	133.1	134.8	1.3	4.0
Services	129.4	130.7	131.7	132.7	133.4	134.6	135.7	137.0	138.5	1.1	3.8
Business services	126.3	128.9	129.2	130.2	131.8	133.3	134.2	136.3	138.6	1.7	5.2
Health services	132.2	132.6	133.5	134.2	134.5	135.5	135.9	137.0	138.1	.8	2.7
Hospitals	131.3	132.2	132.8	133.4	133.7	134.0	134.4	135.4	136.5	.8	2.1
Educational services	133.7	134.4	134.8	137.5	138.0	138.5	138.8	141.6	142.6	.7	3.3
Colleges and universities	135.2	135.9	136.2	138.6	139.1	139.5	139.9	142.5	143.7	.8	3.3
Nonmanufacturing	125.9	127.2	128.2	129.1	129.8	131.1	132.1	133.3	134.7	1.1	3.8
White-collar workers	127.0	128.5	129.5	130.5	131.1	132.7	133.6	134.9	136.5	1.2	4.1
Excluding sales occupations	128.6	130.0	130.8	132.1	132.5	134.0	135.1	136.2	137.9	1.2	4.1
Blue-collar occupations	123.7	124.6	125.6	125.9	126.7	127.5	128.6	129.4	130.1	.5	2.7
Service occupations	124.7	125.3	126.0	127.0	128.6	129.4	130.5	132.7	133.8	.8	4.0
State and local government workers	129.3	129.9	130.2	131.9	132.7	133.2	133.3	135.0	135.7	.5	2.3
Workers, by occupational group:											
White-collar workers	129.1	129.6	129.9	131.8	132.5	132.9	133.0	134.8	135.5	.5	2.3
Professional specialty and technical	128.8	129.1	129.5	131.6	132.3	132.5	132.5	134.6	135.1	.4	2.1
Executive, administrative, and managerial	129.9	130.7	131.0	132.0	132.9	134.1	134.4	135.6	136.4	.6	2.6
Administrative support, including clerical	129.1	130.0	130.4	131.8	133.0	133.3	133.5	135.3	136.1	.6	2.3
Blue-collar workers	128.0	129.0	129.5	130.3	131.2	132.1	132.3	133.3	134.2	.7	2.3
Workers, by industry division:											
Services	129.6	130.0	130.3	132.4	133.1	133.2	133.3	135.4	136.0	.4	2.2
Services excluding schools[5]	129.4	130.3	130.8	131.9	132.0	132.5	132.9	134.4	135.3	.7	2.5
Health services	131.6	132.5	133.1	134.0	134.1	134.5	134.9	136.0	137.2	.9	2.3
Hospitals	131.7	132.6	133.2	134.2	134.3	134.8	135.2	136.3	137.6	1.0	2.5
Educational services	129.4	129.7	130.0	132.3	133.0	133.1	133.2	135.4	135.9	.4	2.2
Schools	129.8	130.0	130.3	132.6	133.4	133.4	133.5	135.7	136.2	.4	2.1
Elementary and secondary	130.1	130.2	130.5	132.6	133.1	133.1	133.3	135.5	135.8	.2	2.0
Colleges and universities	128.7	129.4	129.9	132.5	134.0	134.3	134.1	136.3	137.2	.7	2.4
Public administration[3]	128.3	129.2	129.6	130.7	131.8	133.0	133.0	134.1	135.1	.7	2.5

[1] Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

[2] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[3] Consists of legislative, judicial, administrative, and regulatory activities.

[4] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[5] Includes, for example, library, social, and health services.

22. Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Civilian workers[1]	123.9	125.1	126.1	127.2	128.0	129.2	130.1	131.6	132.8	0.9	3.8
Workers, by occupational group:											
White-collar workers	125.1	126.3	127.3	128.6	129.3	130.6	131.5	133.0	134.3	1.0	3.9
Professional specialty and technical	126.9	128.0	128.8	130.2	130.7	131.4	132.3	134.0	135.0	.7	3.3
Executive, adminitrative, and managerial	124.7	126.2	127.0	129.0	129.4	131.0	132.0	133.5	135.6	1.6	4.8
Administrative support, including clerical	125.2	126.4	127.1	128.4	129.1	130.4	131.4	132.7	133.7	.8	3.6
Blue-collar workers	121.7	122.8	123.9	124.5	125.4	126.2	127.5	128.4	129.3	.7	3.1
Service occupations	123.4	124.2	124.9	126.2	127.6	128.6	129.3	131.5	132.6	.8	3.9
Workers, by industry division:											
Goods-producing	122.9	123.9	125.1	126.1	126.8	127.6	128.9	129.9	130.6	.5	3.0
Manufacturing	124.3	125.4	126.5	127.7	128.4	129.1	130.3	131.3	132.2	.7	3.0
Service-producing	124.3	125.6	126.5	127.7	128.5	129.8	130.6	132.2	133.6	1.1	4.0
Services	126.9	128.0	128.9	130.3	131.1	132.0	132.9	134.8	136.0	.9	3.7
Health services	128.4	129.3	130.0	130.8	131.4	132.4	133.1	134.3	135.4	.8	3.0
Hospitals	127.8	128.6	129.2	130.0	130.5	131.0	131.5	132.5	133.6	.8	2.4
Educational services	128.5	128.8	129.1	131.6	132.3	132.5	132.6	135.3	135.9	.4	2.7
Public administration[4]	124.1	124.9	125.3	126.6	127.7	128.9	129.0	130.3	131.4	.8	2.9
Nonmanufacturing	123.7	125.0	125.9	127.0	127.8	129.1	130.0	131.5	132.8	1.0	3.9
Private industry workers	123.1	124.4	125.6	126.5	127.3	128.6	129.7	131.0	132.3	1.0	3.9
Excluding sales occupations	123.4	124.7	125.7	126.8	127.5	128.6	129.9	131.2	132.4	.9	3.8
Workers, by occupational group:											
White-collar workers	124.3	125.8	127.0	128.0	128.7	130.2	131.3	132.7	134.2	1.1	4.3
Excluding sales occupations	125.2	126.7	127.6	129.0	129.4	130.8	132.0	133.4	134.8	1.0	4.2
Professional specialty and technical occupations	126.1	127.8	128.8	129.6	129.9	131.0	132.4	133.7	134.8	.8	3.8
Executive, adminitrative, and managerial occupations	124.4	125.9	126.8	128.9	129.3	131.0	132.1	133.6	135.8	1.6	5.0
Sales occupations	120.4	122.0	124.4	123.9	125.9	127.8	128.3	129.8	131.4	1.2	4.4
Administrative support occupations, including clerical	125.3	126.5	127.3	128.5	129.2	130.6	131.7	132.9	133.9	.8	3.6
Blue-collar workers	121.4	122.5	123.7	124.3	125.1	126.0	127.3	128.3	129.1	.6	3.2
Precision production, craft, and repair occupations	121.4	122.4	123.7	124.2	125.1	125.8	127.4	128.2	128.7	.4	2.9
Machine operators, assemblers, and inspectors	122.3	123.4	124.5	125.4	126.4	127.2	128.5	129.5	130.6	.8	3.3
Transportation and material moving occupations	118.6	120.0	120.6	121.0	121.1	122.3	123.0	124.1	125.1	.8	3.3
Handlers, equipment cleaners, helpers, and laborers	122.6	124.2	125.1	125.8	127.1	128.4	129.3	130.2	131.8	1.2	3.7
Service occupations	121.4	122.2	123.0	124.1	125.7	126.6	127.6	129.9	131.1	.9	4.3
Production and nonsupervisory occupations[3]	122.4	123.7	124.9	125.6	126.5	127.7	128.8	130.1	131.2	.8	3.7
Workers, by industry division:											
Goods-producing	122.9	123.9	125.1	126.1	126.8	127.5	128.9	129.9	130.6	.5	3.0
Excluding sales occupations	122.4	123.5	124.6	125.7	126.3	127.0	128.3	129.3	130.0	.5	2.9
White-collar occupations	125.3	126.2	127.3	128.6	129.1	130.0	131.4	132.3	132.9	.5	2.9
Excluding sales occupations	124.2	125.3	126.3	127.7	128.1	128.9	130.0	130.9	131.6	.5	2.7
Blue-collar occupations	121.4	122.4	123.7	124.5	125.3	126.0	127.3	128.4	129.2	.6	3.1
Construction	117.4	118.3	119.6	120.4	120.8	122.0	123.6	124.7	124.9	.2	3.4
Manufacturing	124.3	125.4	126.5	127.7	128.4	129.1	130.3	131.3	132.2	.7	3.0
White-collar occupations	126.1	127.1	128.2	129.6	130.1	130.6	131.9	132.8	133.6	.6	2.7
Excluding sales occupations	124.8	126.0	127.0	128.4	128.9	129.3	130.5	131.3	132.2	.7	2.6
Blue-collar occupations	123.1	124.2	125.4	126.3	127.3	128.0	129.2	130.2	131.2	.8	3.1
Durables	124.3	125.1	126.5	127.7	128.4	129.0	130.1	131.2	131.9	.5	2.7
Nondurables	124.4	125.8	126.5	127.6	128.5	129.3	130.6	131.4	132.6	.9	3.2
Service-producing	123.2	124.7	125.8	126.7	127.5	129.0	130.1	131.5	133.1	1.2	4.4
Excluding sales occupations	124.2	125.6	126.5	127.6	128.3	129.7	130.9	132.3	133.9	1.2	4.4
White-collar occupations	124.0	125.6	126.8	127.8	128.5	130.1	131.2	132.6	134.3	1.3	4.5
Excluding sales occupations	125.6	127.2	128.1	129.5	129.9	131.5	132.7	134.2	135.9	1.3	4.6
Blue-collar occupations	121.4	122.7	123.5	123.8	124.8	126.0	127.2	127.9	128.9	.8	3.3
Service occupations	121.3	122.0	122.8	124.0	125.6	126.5	127.5	129.8	131.0	.9	4.3
Transportation and public utilities	123.7	124.6	125.0	125.9	127.0	128.2	128.8	130.1	131.3	.9	3.4
Transportation	121.6	122.9	123.2	123.8	124.7	126.5	126.9	128.5	129.5	.8	3.8
Public utilities	126.1	126.5	127.1	128.4	129.8	130.1	130.9	132.0	133.5	1.1	2.9
Communications	126.2	126.1	126.5	128.2	130.3	129.8	130.6	131.8	134.0	1.7	2.8
Electric, gas, and sanitary services	125.9	127.0	127.7	128.5	129.0	130.4	131.2	132.2	132.9	.5	3.0
Wholesale and retail trade	122.3	123.9	124.8	125.8	127.0	128.5	129.7	130.9	131.6	.5	3.6
Excluding sales occupations	123.2	124.4	124.9	126.5	127.7	129.3	131.1	132.2	133.2	.8	4.3
Wholesale trade	125.5	126.1	128.0	128.5	129.6	131.4	132.2	133.0	133.6	.5	3.1
Excluding sales occupations	125.7	126.3	127.6	128.9	129.8	131.8	132.8	133.9	135.0	.8	4.0
Retail trade	120.6	122.8	123.1	124.4	125.8	127.1	128.5	129.9	130.6	.5	3.8
Food stores	119.1	120.5	121.2	123.1	124.7	124.8	124.7	126.7	128.4	1.3	3.0
General merchandise stores	120.1	121.0	121.7	122.6	124.7	125.0	126.2	126.7	127.0	.2	1.8

See footnotes at end of table.

22. Continued—Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Finance, insurance, and real estate	118.4	119.8	121.9	122.2	122.2	124.5	125.3	126.4	130.6	3.3	6.9
Excluding sales occupations	121.3	123.4	124.5	126.0	125.3	127.2	128.1	129.3	133.6	3.3	6.6
Banking, savings and loan, and other credit agencies	120.1	122.7	124.2	126.8	123.8	125.9	126.8	128.9	138.3	7.3	11.7
Insurance	122.2	123.6	124.1	125.4	126.0	127.9	128.0	128.7	130.2	1.2	3.3
Services	126.0	127.6	128.7	129.7	130.5	131.8	133.0	134.7	136.2	1.1	4.4
Business services	124.3	126.9	127.7	128.5	130.1	131.4	132.4	134.9	137.3	1.8	5.5
Health services	128.4	129.3	130.1	130.8	131.4	132.5	133.2	134.3	135.4	.8	3.0
Hospitals	127.7	128.5	129.1	129.7	130.3	130.7	131.2	132.2	133.2	.8	2.2
Educational services	129.4	130.1	130.4	133.3	133.8	134.5	134.8	137.8	138.4	.4	3.4
Colleges and universities	130.1	130.6	130.9	133.4	133.8	134.6	135.0	137.8	138.7	.7	3.7
Nonmanufacturing	122.5	123.9	125.1	125.9	126.8	128.2	129.3	130.7	132.1	1.1	4.2
White-collar workers	123.8	125.4	126.6	127.6	128.3	129.9	131.0	132.4	134.1	1.3	4.5
Excluding sales occupations	125.4	126.9	127.8	129.2	129.6	131.2	132.4	133.8	135.5	1.3	4.6
Blue-collar occupations	119.8	120.9	122.0	122.4	123.1	124.1	125.5	126.4	127.1	.6	3.2
Service occupations	121.2	122.0	122.7	123.9	125.5	126.4	127.4	129.7	130.9	.9	4.3
State and local government workers	127.3	127.8	128.1	130.1	130.9	131.4	131.5	133.6	134.4	.6	2.7
Workers, by occupational group:											
White-collar workers	127.4	127.9	128.2	130.3	131.1	131.4	131.5	133.7	134.5	.6	2.6
Professional specialty and technical	128.0	128.3	128.6	131.1	131.7	131.9	132.0	134.4	135.1	.5	2.6
Executive, administrative, and managerial	126.9	127.7	128.0	129.3	130.2	131.3	131.7	133.1	134.1	.8	3.0
Administrative support, including clerical	125.1	125.8	126.1	127.7	129.0	129.2	129.5	131.4	132.3	.7	2.6
Blue-collar workers	125.7	126.6	127.0	127.9	128.8	129.6	129.8	131.2	132.3	.8	2.7
Workers, by industry division:											
Services	128.2	128.6	128.9	131.2	131.9	132.1	132.2	134.7	135.3	.4	2.6
Services excluding schools[3]	127.4	128.2	128.7	130.1	130.5	131.2	131.6	133.3	134.4	.8	3.0
Health services	128.6	129.3	129.9	131.1	131.4	132.1	132.6	133.9	135.3	1.0	3.0
Hospitals	128.4	129.1	129.7	130.9	131.3	131.9	132.4	133.7	135.2	1.1	3.0
Educational services	128.3	128.5	128.8	131.3	132.0	132.1	132.2	134.8	135.3	.4	2.5
Schools	128.4	128.7	128.9	131.4	132.2	132.2	132.3	134.9	135.5	.4	2.5
Elementary and secondary	129.2	129.3	129.5	132.0	132.4	132.4	132.6	135.3	135.7	.3	2.5
Colleges and universities	125.9	126.8	127.1	129.8	131.2	131.5	131.4	133.6	134.6	.7	2.6
Public administration[4]	124.1	124.9	125.3	126.6	127.7	128.9	129.0	130.3	131.4	.8	2.9

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[2] Consists of legislative, judicial, administrative, and regulatory activities.

[3] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[4] Includes, for example, library, social, and health services.

23. Employment Cost Index, benefits, private industry workers by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Private industry workers	135.9	136.6	137.4	138.1	138.6	139.4	140.1	140.8	141.8	0.7	2.3
Workers, by occupational group:											
White-collar workers	136.7	137.7	138.4	139.5	139.7	140.8	141.5	142.0	143.4	1.0	2.6
Blue-collar workers	134.7	135.2	136.1	136.2	137.0	137.2	138.0	138.8	139.0	.1	1.5
Workers, by industry division:											
Goods-producing	137.1	137.7	138.6	138.8	139.7	139.9	140.9	141.5	141.5	.0	1.3
Service-producing	134.7	135.5	136.2	137.2	137.4	138.5	139.2	139.8	141.4	1.1	2.9
Manufacturing	136.7	137.5	138.5	138.8	139.8	139.9	141.0	141.4	141.7	.2	1.4
Nonmanufacturing	135.3	136.0	136.7	137.5	137.9	138.9	139.5	140.2	141.5	.9	2.6

24. Employment Cost Index, private nonfarm workers by bargaining status, region, and area size

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
COMPENSATION											
Workers, by bargaining status[1]											
Union	127.7	128.5	129.7	130.1	130.8	131.0	131.8	133.2	133.5	0.2	2.1
Goods-producing	127.5	127.9	129.0	129.2	129.8	130.0	131.2	132.3	132.5	.2	2.1
Service-producing	127.9	129.0	130.3	131.0	131.7	131.9	132.4	134.0	134.5	.4	2.1
Manufacturing	128.1	128.8	129.8	129.8	130.6	130.8	131.7	133.0	133.3	.2	2.1
Nonmanufacturing	127.1	128.0	129.2	129.9	130.4	130.6	131.5	132.9	133.2	.2	2.1
Nonunion	126.5	127.7	128.7	129.7	130.4	131.8	132.8	133.9	135.3	1.0	3.8
Goods-producing	127.2	128.3	129.4	130.4	131.3	132.0	133.2	134.0	134.7	.5	2.6
Service-producing	126.0	127.3	128.3	129.2	129.9	131.5	132.5	133.7	135.3	1.2	4.2
Manufacturing	128.3	129.3	130.5	131.7	132.5	133.1	134.4	135.1	135.9	.6	2.6
Nonmanufacturing	125.7	127.0	128.0	128.9	129.6	131.1	132.2	133.4	134.9	1.1	4.1
Workers, by region[1]											
Northeast	127.8	128.9	129.7	130.6	131.1	132.2	133.1	134.0	135.0	.7	3.0
South	125.6	127.0	127.8	128.8	129.7	130.8	131.5	132.5	134.6	1.6	3.8
Midwest (formerly North Central)	128.3	129.5	130.7	131.3	132.1	133.3	134.7	136.2	136.9	.5	3.6
West	125.0	125.9	127.3	128.3	128.9	130.3	131.4	132.5	133.4	.7	3.5
Workers, by area size[1]											
Metropolitan areas	126.8	128.0	129.1	130.0	130.6	131.7	132.8	133.9	135.1	.9	3.4
Other areas	126.5	127.2	128.0	128.7	130.2	131.4	132.4	133.8	135.3	1.1	3.9
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	122.2	122.8	124.2	124.8	125.4	126.0	126.9	128.3	128.9	.5	2.8
Goods-producing	120.6	121.3	122.5	123.2	123.6	124.1	125.4	126.6	127.1	.4	2.8
Service-producing	124.2	124.8	126.2	126.8	127.6	128.2	128.8	130.4	131.2	.6	2.8
Manufacturing	122.0	122.9	123.9	124.5	125.2	125.6	126.5	127.8	128.6	.6	2.7
Nonmanufacturing	122.3	122.8	124.3	124.9	125.5	126.1	127.1	128.6	129.1	.4	2.9
Nonunion	123.3	124.8	125.9	126.9	127.7	129.1	130.3	131.6	133.0	1.1	4.2
Goods-producing	123.8	124.9	126.1	127.3	128.0	128.9	130.2	131.2	132.0	.6	3.1
Service-producing	123.0	124.6	125.7	126.6	127.5	129.1	130.2	131.6	133.2	1.2	4.5
Manufacturing	125.2	126.3	127.5	128.8	129.6	130.3	131.7	132.6	133.5	.7	3.0
Nonmanufacturing	122.6	124.2	125.2	126.1	127.0	128.5	129.7	131.1	132.6	1.1	4.4
Workers, by region[1]											
Northeast	123.6	124.9	126.0	127.0	127.7	128.8	129.8	130.7	131.6	.7	3.1
South	122.4	124.1	125.1	126.0	127.0	128.5	129.4	130.6	133.0	1.8	4.7
Midwest (formerly North Central)	123.6	125.1	126.2	126.9	127.7	129.0	130.4	132.2	133.0	.6	4.2
West	122.7	123.3	124.8	125.8	126.5	127.7	128.9	130.2	131.2	.8	3.7
Workers, by area size[1]											
Metropolitan areas	123.2	124.6	125.8	126.7	127.4	128.7	129.9	131.1	132.3	.9	3.8
Other areas	122.4	123.4	124.2	125.0	126.5	127.7	128.8	130.4	132.0	1.2	4.3

[1] The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the *Monthly Labor Review* Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, medium and large private establishments, selected years, 1980–93

Item	1980	1982	1984	1986	1988	1989	1991	1993
Scope of survey (in 000's)	21,352	21,043	21,013	21,303	31,059	32,428	31,163	28,728
Number of employees (in 000's):								
With medical care	20,711	20,412	20,383	20,238	27,953	29,834	25,865	23,519
With life insurance	20,498	20,201	20,172	20,451	28,574	30,482	29,293	26,175
With defined benefit plan	17,936	17,676	17,231	16,190	19,567	20,430	18,386	16,015
Time-off plans								
Participants with:								
Paid lunch time	10	9	9	10	11	10	8	9
Average minutes per day	–	25	26	27	29	26	30	29
Paid rest time	75	76	73	72	72	71	67	68
Average minutes per day	–	25	26	26	26	26	28	26
Paid funeral leave	–	–	–	88	85	84	80	83
Average days per occurrence	–	–	–	3.2	3.2	3.3	3.3	3.0
Paid holidays	99	99	99	99	96	97	92	91
Average days per year	10.1	10.0	9.8	10.0	9.4	9.2	10.2	9.4
Paid personal leave	20	24	23	25	24	22	21	21
Average days per year	–	3.8	3.6	3.7	3.3	3.1	3.3	3.1
Paid vacations	100	99	99	100	98	97	96	97
Paid sick leave	62	67	67	70	69	68	67	65
Unpaid maternity leave	–	–	–	–	33	37	37	60
Unpaid paternity leave	–	–	–	–	16	18	26	53
Insurance plans								
Participants in medical care plans	97	97	97	95	90	92	83	82
Percent of participants with coverage for:								
Home health care	–	–	46	66	76	75	81	86
Extended care facilities	58	62	62	70	79	80	80	82
Physical exam	–	–	8	18	28	28	30	42
Percent of participants with employee contribution required for:								
Self coverage	26	27	36	43	44	47	51	61
Average monthly contribution	–	–	$11.93	$12.80	$19.29	$25.31	$26.60	$31.55
Family coverage	46	51	58	63	64	66	69	76
Average monthly contribution	–	–	$35.93	$41.40	$60.07	$72.10	$96.97	$107.42
Participants in life insurance plans	96	96	96	96	92	94	94	91
Percent of participants with:								
Accidental death and dismemberment insurance	69	72	74	72	78	71	71	76
Survivor income benefits	–	–	–	10	8	7	6	5
Retiree protection available	–	64	64	59	49	42	44	41
Participants in long-term disability insurance plans	40	43	47	48	42	45	40	41
Participants in sickness and accident insurance plans	54	51	51	49	46	43	45	44
Retirement plans								
Participants in defined benefit pension plans	84	84	82	76	63	63	59	56
Percent of participants with:								
Normal retirement prior to age 65	55	58	63	64	59	62	55	52
Early retirement available	98	97	97	98	98	97	98	95
Ad hoc pension increase in last 5 years	–	–	47	35	26	22	7	6
Terminal earnings formula	53	52	54	57	55	64	56	61
Benefit coordinated with Social Security	45	45	56	62	62	63	54	48
Participants in defined contribution plans	–	–	–	60	45	48	48	49
Participants in plans with tax-deferred savings arrangements	–	–	–	33	36	41	44	43
Other benefits								
Employees eligible for:								
Flexible benefits plans	–	–	–	2	5	9	10	12
Reimbursement accounts	–	–	–	5	12	23	36	52

NOTE: Dash indicates data not available.

26. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, small private establishments and State and local governments, 1987, 1990, 1992, and 1994

Item	Small private establishments			State and local governments			
	1990	1992	1994	1987	1990	1992	1994
Scope of survey (in 000's)	32,466	34,360	35,910	10,321	12,972	12,466	12,907
Number of employees (in 000's):							
With medical care	22,402	24,396	23,536	9,599	12,064	11,219	11,192
With life insurance	20,778	21,990	21,955	8,773	11,415	11,095	11,194
With defined benefit plan	6,493	7,559	5,480	9,599	11,675	10,845	11,708
Time-off plans							
Participants with:							
Paid lunch time	8	9	–	17	11	10	–
Average minutes per day	37	37	–	34	36	34	–
Paid rest time	48	49	–	58	56	53	–
Average minutes per day	27	26	–	29	29	29	–
Paid funeral leave	47	50	50	56	63	65	62
Average days per occurrence	2.9	3.0	3.1	3.7	3.7	3.7	3.7
Paid holidays	84	82	82	81	74	75	73
Average days per year[1]	9.5	9.2	7.5	10.9	13.6	14.2	11.5
Paid personal leave	11	12	13	38	39	38	38
Average days per year	2.8	2.6	2.6	2.7	2.9	2.9	3.0
Paid vacations	88	88	88	72	67	67	66
Paid sick leave	47	53	50	97	95	95	94
Unpaid leave	17	18	–	57	51	59	–
Unpaid paternity leave	8	7	–	30	33	44	–
Unpaid family leave	–	–	47	–	–	–	93
Insurance plans							
Participants in medical care plans	69	71	66	93	93	90	87
Percent of participants with coverage for:							
Home health care	79	80	–	76	82	87	84
Extended care facilities	83	84	–	78	79	84	81
Physical exam	26	28	–	36	36	47	56
Percent of participants with employee contribution required for:							
Self coverage	42	47	52	35	38	43	47
Average monthly contribution	$25.13	$36.51	$40.97	$15.74	$25.53	$28.97	$30.20
Family coverage	67	73	76	71	65	72	71
Average monthly contribution	$109.34	$150.54	$159.63	$71.89	$117.59	$139.23	$149.70
Participants in life insurance plans	64	64	61	85	88	89	87
Percent of participants with:							
Accidental death and dismemberment insurance	78	76	79	67	67	74	64
Survivor income benefits	1	1	2	1	1	1	2
Retiree protection available	19	25	20	55	45	46	46
Participants in long-term disability insurance plans	19	23	20	31	27	28	30
Participants in sickness and accident insurance plans	6	26	26	14	21	22	21
Retirement plans							
Participants in defined benefit pension plans	20	22	15	93	90	87	91
Percent of participants with:							
Normal retirement prior to age 65	54	50	–	92	89	92	92
Early retirement available	95	95	–	90	88	89	87
Ad hoc pension increase in last 5 years	7	4	–	33	16	10	13
Terminal earnings formula	58	54	–	100	100	100	99
Benefit coordinated with Social Security	49	46	–	18	8	10	49
Participants in defined contribution plans	31	33	34	9	9	9	9
Participants in plans with tax-deferred savings arrangements	17	24	23	28	45	45	24
Other benefits							
Employees eligible for:							
Flexible benefits plans	1	2	3	5	5	5	5
Reimbursement accounts	8	14	19	5	31	50	64

[1] Methods used to calculate the average number of paid holidays were revised in 1994 to count partial days more precisely. Average holidays for 1994 are not comparable with those reported in 1990 and 1992.

NOTE: Dash indicates data not available.

27. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1996			1997								
	1995	1996	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]	Mar.[p]	Apr.[p]	May[p]	June[p]	July[p]	Aug.[p]	Sept.[p]	Oct.[p]
Number of stoppages:															
Beginning in period	31	37	5	2	1	1	0	1	6	6	0	2	2	6	3
In effect during period	34	38	8	7	5	6	4	4	7	12	3	4	3	6	5
Workers involved:															
Beginning in period (in thousands)	192	273	15.5	3.3	2.1	4.3	.0	2.7	55.8	16.9	.0	24.6	184.5	30.3	4.4
In effect during period (in thousands)	207	275	22.9	19.5	12.0	16.3	9.9	10.1	60.6	60.5	12.0	35.3	189.3	30.3	8.6
Days idle:															
Number (in thousands)	5,771	4,889	243.9	234.6	226.8	238.7	170.6	144.3	537.7	567.4	231.2	228.5	2,075.4	128.4	64.0
Percent of estimated working time[1]	.02	.02	.01	.01	.01	.01	.01	.01	.02	.02	.01	.01	.08	.00	.00

[1] Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in "Total economy measures of strike idleness," *Monthly Labor Review*, October 1968, pp. 54–56.

[p] = preliminary.

28. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS															
All items	156.9	160.5	159.6	160.0	160.2	160.1	160.3	160.5	160.8	161.2	161.6	161.5	161.3	161.6	161.9
Food and beverages	153.7	157.7	156.9	157.1	157.1	157.1	157.1	157.5	158.1	158.4	158.7	158.9	159.1	160.3	159.8
Food	153.3	157.3	156.5	156.6	156.6	156.6	156.6	157.0	157.6	157.9	158.2	158.5	158.7	159.9	159.4
Food at home	154.3	158.1	157.7	157.7	157.5	157.5	157.3	157.7	158.5	158.6	159.0	159.1	159.2	161.0	160.0
Cereals and bakery products	174.0	177.6	176.7	176.7	176.9	176.9	178.2	178.3	178.6	178.1	178.4	178.0	178.4	179.0	179.7
Meats, poultry, fish, and eggs	144.8	148.5	148.8	147.8	147.7	147.7	147.9	148.2	149.1	149.1	148.9	149.3	148.4	148.3	147.5
Dairy and related products[1]	142.1	145.5	146.2	146.1	145.7	145.4	144.1	143.3	143.4	143.5	145.7	147.0	147.8	148.3	147.7
Fruits and vegetables	183.9	187.5	187.4	189.3	186.4	186.4	183.7	184.6	187.3	188.1	188.5	189.5	191.3	202.1	193.8
Nonalcoholic beverages and beverage materials	128.6	133.4	128.5	129.5	131.9	133.4	134.8	136.3	136.7	136.7	136.6	134.7	133.1	134.1	134.8
Other foods at home	142.9	147.3	145.4	145.5	146.9	147.1	147.8	148.6	148.7	148.9	149.0	147.7	147.7	148.7	149.1
Sugar and sweets	143.7	147.8	147.2	146.3	147.9	147.9	148.1	149.2	147.8	148.5	148.2	147.4	147.9	150.3	149.6
Fats and oils	140.5	141.7	142.7	142.4	142.4	142.0	141.6	141.4	141.4	142.0	141.7	140.4	140.3	140.5	141.5
Other foods	156.2	161.2	160.6	160.3	161.1	160.4	161.2	161.3	161.8	161.9	162.5	161.5	162.8	163.6	164.2
Other miscellaneous foods[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.4	100.4
Food away from home[1]	152.7	157.0	155.6	156.0	156.2	156.3	156.6	157.1	157.4	157.8	158.2	158.6	159.0	159.2	159.6
Other food away from home[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.1	100.4
Alcoholic beverages	158.5	162.8	161.8	162.1	162.3	162.8	162.7	162.9	163.2	163.5	163.7	163.7	164.0	164.6	165.0
Housing	152.8	156.8	155.8	155.9	155.8	155.9	156.9	157.5	157.6	157.7	157.7	157.7	157.7	158.3	158.8
Shelter	171.0	176.3	174.6	175.2	175.3	175.3	176.0	177.0	177.5	177.2	177.8	177.7	178.1	179.2	180.1
Rent of primary residence	162.0	166.7	164.8	165.1	165.5	165.9	166.4	166.8	167.3	167.8	168.2	168.7	169.1	169.5	169.9
Lodging away from home[2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	105.1	109.3
Owners' equivalent rent of primary residence[3]	176.8	181.9	179.9	180.1	180.5	180.9	181.4	182.1	182.6	183.2	183.6	184.2	184.7	185.1	185.5
Tenants' and household insurance[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.3	100.2
Fuels and utilities	127.5	130.8	131.0	129.9	128.9	129.0	131.9	132.1	131.4	132.1	130.8	131.1	130.0	128.8	127.4
Fuels	115.2	117.9	119.2	117.2	115.3	115.3	119.8	119.6	118.6	119.7	117.4	117.7	115.8	114.5	112.8
Fuel oil and other fuels	99.2	99.8	109.6	105.5	102.1	100.4	98.0	94.7	93.5	93.7	95.3	96.6	97.2	96.4	95.2
Gas (piped) and electricity	122.1	125.1	125.3	123.4	121.7	121.9	127.5	127.8	126.7	128.1	125.1	125.3	123.0	121.6	119.7
Household furnishings and operations	124.7	125.4	125.2	125.4	125.5	125.8	125.7	125.6	125.2	125.4	125.4	125.2	125.1	125.6	126.1
Apparel	131.7	132.9	131.9	134.5	136.1	135.3	132.4	130.2	130.0	133.0	134.9	134.7	131.6	129.8	131.9
Men's and boys' apparel	127.7	130.1	127.3	129.2	131.4	132.0	129.0	128.0	128.9	131.4	133.1	133.0	131.2	129.8	130.8
Women's and girls' apparel	124.7	126.1	126.1	130.1	131.9	129.9	125.6	121.1	120.3	126.0	128.3	128.8	123.6	120.2	124.3
Infants' and toddlers' apparel[1]	129.7	129.0	127.2	129.7	133.7	133.8	132.9	131.3	127.3	126.7	126.2	126.0	125.8	124.8	123.1
Footwear	126.6	127.6	126.3	127.0	129.3	129.1	126.3	125.9	126.3	127.4	130.6	129.3	128.2	127.4	126.6
Transportation	143.0	144.3	144.8	144.9	144.8	144.4	144.0	143.7	143.8	144.3	144.5	143.9	143.2	142.7	142.1
Private transportation	140.0	141.0	141.9	141.5	141.3	141.0	140.7	140.1	140.8	141.0	140.9	140.6	140.0	139.3	138.4
New and used motor vehicles[2]	–	–	101.6	101.6	101.5	101.1	100.6	100.1	99.5	99.3	99.6	99.9	100.0	100.2	100.2
New vehicles	143.7	144.3	145.4	145.4	145.2	144.6	144.2	143.7	143.0	142.7	143.3	144.0	144.1	144.4	144.4
Used cars and trucks[1]	157.0	151.1	154.4	154.4	154.3	153.9	151.8	149.9	148.5	148.2	147.9	147.6	147.9	148.1	148.4
Motor fuel	106.3	106.2	108.1	106.4	106.0	105.7	105.9	103.9	107.6	109.3	106.7	104.6	101.9	97.8	94.1
Gasoline (all types)	105.9	105.8	107.4	105.8	105.4	105.2	105.4	103.5	107.4	109.2	106.5	104.1	101.3	97.2	93.5
Motor vehicle parts and equipment	102.2	101.9	102.6	102.2	101.8	101.7	101.7	102.3	101.8	101.7	101.4	101.6	101.4	101.3	101.4
Motor vehicle maintenance and repair	158.4	162.7	161.2	161.5	161.9	162.2	162.6	162.9	163.3	163.5	163.9	164.0	164.7	165.0	165.5
Public transportation	181.9	186.7	182.4	188.1	189.8	188.1	186.6	189.4	183.4	186.0	190.9	185.9	184.3	187.1	191.2
Medical care	228.2	234.6	232.7	233.4	233.8	234.2	234.4	234.8	235.2	235.4	235.8	236.4	237.1	238.1	239.3
Medical care commodities	210.4	215.3	213.9	214.7	215.2	215.6	216.0	216.0	215.5	215.3	215.6	215.8	216.8	217.6	218.4
Medical care services	232.4	239.1	237.1	237.7	238.1	238.5	238.7	239.2	239.8	240.0	240.5	241.2	241.8	242.9	244.2
Professional services	208.3	215.4	213.2	214.2	214.7	215.2	215.5	215.9	216.3	216.4	216.8	217.1	217.5	218.5	219.7
Hospital and related services	269.5	278.4	276.6	276.7	277.0	277.3	277.4	278.1	279.0	279.4	280.2	281.3	282.5	283.5	285.2
Recreation[2]	–	–	99.2	99.4	99.3	99.4	99.8	99.8	100.0	99.9	100.0	100.0	100.0	100.3	100.7
Video and audio[1,2]	–	–	99.0	99.1	98.4	98.9	99.6	99.9	100.0	99.9	99.9	100.3	100.0	100.6	101.2
Education and communication[2]	–	–	97.5	97.5	97.5	97.6	97.7	97.9	98.6	99.7	99.9	100.0	100.0	99.9	99.8
Education[2]	–	–	95.6	95.6	95.6	95.8	95.9	96.2	97.8	99.6	99.9	99.9	100.0	100.3	100.4
Educational books and supplies	226.9	238.4	235.3	235.4	235.8	235.9	237.2	237.7	240.0	241.5	242.4	242.4	242.8	245.1	246.9
Tuition, other school fees, and child care	267.1	280.4	275.3	275.3	275.4	276.1	277.0	281.9	287.5	288.2	288.3	288.5	289.2	289.2	289.2
Communication[1,2]	–	–	100.5	100.6	100.6	100.6	100.7	100.6	99.8	99.8	100.0	100.1	100.0	99.6	99.2
Information and information processing[1,2]	–	–	100.6	100.7	100.6	100.6	100.8	100.7	99.8	99.8	100.0	100.1	100.0	99.6	99.1
Telephone services[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	99.9	100.0
Information and information processing other than telephone services[1,4]	57.2	50.1	53.2	52.4	51.4	50.8	49.9	49.1	48.2	48.5	48.9	47.6	47.4	46.2	44.3
Personal computers and peripheral equipment[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	96.9	91.3
Other goods and services	215.4	224.8	220.7	221.4	222.7	223.1	223.1	223.5	225.7	228.1	229.4	229.9	230.1	231.3	233.1
Tobacco and smoking products	232.8	243.7	237.4	238.2	243.2	243.8	241.3	242.0	243.4	246.5	250.2	250.7	251.2	253.8	261.2
Personal care[1]	150.1	152.7	151.5	151.8	152.7	152.6	152.8	152.6	152.5	152.7	153.3	154.3	154.0	154.6	155.0
Personal care products[1]	144.3	144.2	143.3	143.6	144.5	144.1	144.2	143.7	143.5	143.7	144.5	146.1	145.3	146.1	146.7
Personal care services[1]	156.6	162.4	160.7	161.2	162.0	162.3	162.6	162.5	162.7	162.7	163.4	163.5	163.9	164.3	164.3
Miscellaneous personal services	215.6	226.1	221.8	223.8	224.1	225.0	226.5	226.9	228.6	228.4	228.9	229.5	230.0	230.9	232.1

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Commodity and service group:															
Commodities	139.9	141.8	141.8	142.0	142.3	142.1	141.5	141.0	141.4	142.1	142.4	142.3	141.7	141.6	141.5
Food and beverages	153.7	157.7	156.9	157.1	157.1	157.1	157.1	157.5	158.1	158.4	158.7	158.9	159.1	160.3	159.8
Commodities less food and beverages	131.5	132.2	132.6	132.9	133.2	132.9	132.0	131.0	131.3	132.2	132.5	132.2	131.2	130.5	130.5
Nondurables less food and beverages	133.0	134.6	134.6	135.0	135.8	135.4	134.2	132.9	133.8	135.5	135.8	135.3	133.5	132.0	132.1
Apparel	131.7	132.9	131.9	134.5	136.1	135.3	132.4	130.2	130.0	133.0	134.9	134.7	131.6	129.8	131.9
Nondurables less food, beverages, and apparel	138.6	140.6	141.0	140.2	140.6	140.4	140.1	139.3	140.8	141.9	141.3	140.6	139.5	138.1	137.2
Durables	129.4	128.7	129.8	129.9	129.6	129.4	129.0	128.3	127.7	127.6	127.8	127.9	128.0	128.2	128.2
Services	174.1	179.4	177.7	178.2	178.3	178.4	179.3	180.1	180.3	180.6	181.0	181.0	181.0	181.8	182.4
Rent of shelter[3]	178.0	183.4	181.6	182.3	182.4	182.4	183.1	184.1	184.7	184.4	185.0	185.0	185.3	186.5	187.5
Transporatation services	180.5	185.0	183.4	184.9	185.4	184.9	184.5	185.6	184.3	184.7	186.9	186.2	186.0	187.1	187.9
Other services	201.4	209.6	206.7	207.3	207.7	208.0	208.8	209.1	210.7	212.2	212.7	212.7	213.1	213.7	214.4
Special indexes:															
All items less food	157.5	161.1	160.2	160.6	160.8	160.7	161.0	161.1	161.3	161.8	162.2	162.1	161.8	161.9	162.3
All items less shelter	152.8	155.9	155.3	155.6	155.8	155.7	155.7	155.6	155.9	156.6	156.9	156.8	156.4	156.4	156.4
All items less medical care	152.8	156.3	155.5	155.9	156.0	155.9	156.1	156.3	156.6	157.1	157.4	157.3	157.0	157.3	157.5
Commodities less food	132.6	133.4	133.8	134.1	134.4	134.1	133.3	132.3	132.6	133.5	133.8	133.5	132.6	131.9	131.9
Nondurables less food	134.5	136.3	136.2	136.6	137.4	137.0	135.9	134.7	135.5	137.2	137.4	137.0	135.3	133.9	134.1
Nondurables less food and apparel	139.5	141.8	142.1	141.4	141.7	141.7	141.4	140.8	142.1	143.0	142.5	141.9	141.0	139.8	138.9
Nondurables	143.5	146.4	145.9	146.2	146.6	146.4	145.8	145.4	146.1	147.1	147.4	147.3	146.5	146.2	146.1
Services less rent of shelter[3]	182.5	188.1	186.4	186.7	186.8	186.9	188.1	188.8	188.7	189.5	189.8	189.8	189.5	189.9	190.1
Services less medical care services	168.7	173.9	172.2	172.7	172.8	172.8	173.8	174.6	174.8	175.1	175.5	175.4	175.4	176.1	176.6
Energy	110.1	111.5	113.1	111.2	110.0	109.9	112.3	111.4	112.5	113.9	111.5	110.7	108.4	105.9	103.2
All items less energy	163.1	167.1	165.9	166.5	166.8	166.8	166.7	167.0	167.3	167.6	168.3	168.3	168.3	169.0	169.6
All items less food and energy	165.6	169.5	168.3	169.0	169.4	169.3	169.2	169.5	169.6	170.0	170.8	170.8	170.7	171.2	172.1
Commodities less food and energy	141.3	142.3	142.2	143.0	143.5	143.3	142.2	141.5	141.2	142.0	142.7	142.8	142.1	142.0	142.7
Energy commodities	105.7	105.7	108.6	106.6	105.8	105.3	105.2	103.1	106.2	107.7	105.7	103.9	101.6	97.8	94.3
Services less energy	179.4	185.0	183.1	183.8	184.1	184.1	184.6	185.4	185.8	186.0	186.7	186.7	186.9	187.9	188.8
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS															
All items	154.1	157.6	156.8	157.0	157.2	157.2	157.4	157.5	157.8	158.3	158.5	158.5	158.2	158.4	158.5
Food and beverages	153.2	157.2	156.4	156.5	156.5	156.6	156.6	157.0	157.6	157.8	158.1	158.3	158.5	159.6	159.2
Food	152.8	156.8	156.0	156.1	156.1	156.1	156.1	156.6	157.1	157.4	157.7	157.9	158.1	159.3	158.8
Food at home	153.5	157.2	156.8	156.7	156.6	156.6	156.5	156.9	157.6	157.7	158.0	158.1	158.2	159.9	158.9
Cereals and bakery products	173.6	177.3	176.4	176.4	176.6	176.7	177.9	177.9	178.2	177.7	178.0	177.8	178.1	178.8	179.4
Meats, poultry, fish, and eggs	144.5	148.2	148.4	147.4	147.3	147.4	147.5	148.0	148.8	148.7	148.5	149.0	148.0	148.0	147.2
Dairy and related products[1]	141.9	145.2	146.0	145.8	145.4	145.1	143.8	143.0	143.0	143.2	145.5	146.8	147.5	147.9	147.4
Fruits and vegetables	183.1	186.6	186.1	188.2	185.2	185.4	183.1	184.0	186.9	187.5	187.7	188.4	190.0	200.9	192.4
Nonalcoholic beverages and beverage materials	128.1	132.3	128.0	128.9	131.1	132.4	133.6	134.9	135.2	135.2	135.2	133.3	131.7	132.9	133.6
Other foods at home	142.6	146.8	145.0	145.1	146.4	146.6	147.2	147.9	148.0	148.2	148.4	147.0	147.1	148.1	148.5
Sugar and sweets	143.6	147.7	147.2	146.2	147.9	147.9	148.1	149.2	147.8	148.4	148.0	147.3	147.7	150.2	149.5
Fats and oils	140.3	141.4	142.3	142.2	142.1	141.7	141.3	141.1	141.2	141.7	141.4	140.2	140.0	140.4	141.4
Other foods	156.0	161.1	160.4	160.1	161.0	160.3	160.9	161.2	161.6	161.8	162.3	161.3	162.7	163.6	164.1
Other miscellaneous foods[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.5	100.5
Food away from home[1]	152.6	157.0	155.7	156.0	156.2	156.2	156.6	157.1	157.4	157.8	158.2	158.6	159.0	159.3	159.6
Other food away from home[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.1	100.3
Alcoholic beverages	157.9	162.1	161.1	161.5	161.7	162.2	162.1	162.2	162.5	162.6	162.8	162.8	163.1	163.6	163.9
Housing	149.6	153.4	152.4	152.5	152.4	152.6	153.6	154.1	154.2	154.4	154.4	154.5	154.4	154.8	155.1
Shelter	166.2	171.2	169.4	169.9	170.1	170.3	170.9	171.7	172.3	172.2	172.7	172.8	173.1	173.9	174.6
Rent of primary residence	161.6	166.3	164.4	164.7	165.2	165.6	166.0	166.5	167.0	167.5	167.9	168.4	168.8	169.2	169.6
Lodging away from home[2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	104.8	108.6
Owners' equivalent rent of primary residence[3]	161.2	165.8	164.0	164.3	164.6	164.9	165.4	166.0	166.5	167.0	167.4	167.9	168.3	168.7	169.1
Tenants' and household insurance[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.4	100.2
Fuels and utilities	127.2	130.5	130.7	129.6	128.6	128.7	131.7	131.9	131.2	131.9	130.6	130.9	129.7	128.6	127.1
Fuels	114.7	117.3	118.5	116.5	114.7	114.7	119.2	119.1	118.1	119.3	116.8	117.3	115.2	113.9	112.2
Fuel oil and other fuels	99.0	99.6	109.4	105.3	101.7	100.0	97.6	94.5	93.2	93.4	95.0	96.4	97.0	96.2	95.1
Gas (piped) and electricity	121.6	124.6	124.8	122.9	121.2	121.5	127.0	127.3	126.2	127.6	124.6	124.9	122.4	121.0	119.2
Household furnishings and operations	123.2	123.9	123.7	123.9	124.0	124.3	124.2	124.1	123.7	123.9	123.9	123.7	123.6	124.1	124.7
Apparel	130.9	132.1	131.1	133.8	135.5	134.7	131.8	129.8	129.4	132.1	133.9	133.6	130.3	128.7	130.4
Men's and boys' apparel	127.4	129.9	127.2	128.8	131.1	131.7	128.8	128.0	128.8	131.2	132.4	132.7	130.7	129.4	130.1
Women's and girls' apparel	123.6	124.9	124.8	129.2	130.7	129.0	124.8	120.6	119.6	124.6	126.8	127.0	121.5	118.5	122.3
Infants' and toddlers' apparel[1]	130.8	130.1	128.1	130.7	134.9	134.9	133.8	132.0	128.4	128.3	127.7	127.1	126.5	125.3	123.1
Footwear	127.6	128.5	127.2	127.9	130.3	130.1	127.2	126.8	127.3	128.3	131.8	130.4	129.2	128.4	127.4
Transportation	142.8	143.6	144.4	144.2	144.2	143.8	143.4	142.9	143.3	143.6	143.6	143.1	142.4	141.7	140.9
Private transportation	140.7	141.3	142.4	141.9	141.8	141.5	141.1	140.4	141.1	141.4	141.1	140.8	140.1	139.3	138.4
New and used motor vehicles[2]	–	–	101.9	101.9	101.8	101.5	100.9	100.2	99.6	99.4	99.7	99.9	100.0	100.1	100.2
New vehicles	144.7	145.5	146.7	146.6	146.4	145.9	145.4	144.9	144.3	144.0	144.7	145.1	145.3	145.6	145.5
Used cars and trucks[1]	158.2	152.6	155.7	155.7	155.7	155.3	153.3	151.4	149.9	149.7	149.4	149.2	149.5	149.7	149.9

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997											1998	
	1996	1997	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Motor fuel	106.3	106.2	108.2	106.3	105.9	105.7	105.9	104.0	107.7	109.2	106.6	104.4	101.7	97.6	94.1
Gasoline (all types)	105.9	105.8	107.5	105.7	105.4	105.2	105.5	103.6	107.6	109.2	106.3	104.0	101.2	97.1	93.6
Motor vehicle parts and equipment	101.3	101.0	101.6	101.3	100.8	100.7	100.8	101.5	101.0	100.8	100.6	100.7	100.8	100.7	100.9
Motor vehicle maintenance and repair	159.3	163.7	162.1	162.5	162.9	163.2	163.7	164.0	164.2	164.5	164.9	165.1	165.7	166.0	166.5
Public transportation	179.6	184.2	180.3	185.1	186.8	185.2	184.0	186.2	181.6	183.5	187.8	183.9	182.5	184.7	187.9
Medical care	227.6	234.0	232.1	232.8	233.2	233.6	233.8	234.2	234.6	234.7	235.2	235.8	236.5	237.4	238.7
Medical care commodities	207.8	212.6	211.4	212.1	212.3	212.9	213.4	213.3	212.5	212.5	212.9	213.1	214.1	214.7	215.4
Medical care services	232.1	238.8	236.8	237.4	237.9	238.2	238.4	238.9	239.5	239.7	240.3	240.8	241.6	242.5	244.0
Professional services	209.5	216.7	214.3	215.4	216.0	216.5	216.8	217.2	217.7	217.8	218.1	218.5	218.9	219.8	221.0
Hospital and related services	266.5	274.7	272.8	273.0	273.4	273.6	273.6	274.4	275.2	275.6	276.4	277.4	278.7	279.6	281.4
Recreation[2]	–	–	99.2	99.4	99.3	99.4	99.8	99.8	100.1	100.0	100.1	100.0	100.0	100.3	100.7
Video and audio[1,2]	–	–	98.8	99.0	98.3	98.9	99.5	100.0	100.0	99.9	99.9	100.3	100.0	100.5	101.2
Education and communication[2]	–	–	97.5	97.6	97.6	97.8	97.9	98.1	98.5	99.7	99.9	100.0	100.0	100.0	99.8
Education[2]	–	–	95.5	95.5	95.5	95.7	95.9	96.2	97.6	99.6	99.8	99.9	100.0	100.3	100.4
Educational books and supplies	228.2	240.4	236.9	237.1	237.4	237.5	239.6	240.1	241.9	243.9	244.7	244.7	245.2	247.5	249.4
Tuition, other school fees, and child care	261.0	274.6	269.5	269.6	269.7	270.3	270.6	271.4	275.7	281.5	282.1	282.3	282.7	283.5	283.5
Communication[1,2]	–	–	100.3	100.5	100.5	100.5	100.7	100.6	99.7	99.8	99.9	100.1	100.0	99.7	99.3
Information and information processing[1,2]	–	–	100.4	100.5	100.5	100.5	100.7	100.7	99.7	99.8	99.9	100.1	100.0	99.6	99.3
Telephone services[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	99.9	100.0
Information and information processing other than telephone services[1,4]	57.7	51.1	54.0	53.1	52.4	51.8	50.9	50.1	49.3	49.5	50.1	49.3	48.9	47.7	45.8
Personal computers and peripheral equipment[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	100.0	96.6	91.1
Other goods and services	212.2	221.6	217.4	218.0	219.8	220.2	219.9	220.3	222.1	224.6	226.1	226.7	226.9	228.2	230.6
Tobacco and smoking products	232.5	243.3	237.0	237.7	242.7	243.4	240.9	241.7	243.0	246.1	249.9	250.5	250.9	253.6	261.1
Personal care[1]	150.1	152.6	151.4	151.6	152.6	152.6	152.7	152.4	152.4	152.6	153.3	154.3	153.9	154.5	155.0
Personal care products[1]	145.0	145.1	144.2	144.3	145.4	145.0	145.0	144.6	144.4	144.7	145.4	147.1	146.1	147.0	147.6
Personal care services[1]	156.6	162.5	160.8	161.2	162.1	162.4	162.7	162.6	162.8	163.0	163.5	163.7	164.1	164.5	164.5
Miscellaneous personal services	214.7	225.2	221.5	223.2	223.7	224.6	225.4	225.6	227.2	227.3	227.7	228.3	228.9	229.8	231.1
Commodity and service group:															
Commodities	139.9	141.8	141.8	142.0	142.2	142.1	141.5	141.0	141.4	142.1	142.3	142.1	141.6	141.4	141.3
Food and beverages	153.2	157.2	156.4	156.5	156.5	156.6	156.6	157.0	157.6	157.8	158.1	158.3	158.5	159.6	159.2
Commodities less food and beverages	131.8	132.4	132.9	133.1	133.4	133.2	132.3	131.3	131.6	132.5	132.7	132.3	131.3	130.5	130.5
Nondurables less food and beverages	132.8	134.5	134.5	134.8	135.6	135.3	134.1	132.9	133.9	135.5	135.7	135.1	133.1	131.5	131.5
Apparel	130.9	132.1	131.1	133.8	135.5	134.7	131.8	129.8	129.4	132.1	133.9	133.6	130.3	128.7	130.4
Nondurables less food, beverages, and apparel	138.3	140.4	140.8	139.9	140.3	140.2	139.9	139.1	140.8	141.9	141.2	140.5	139.3	137.6	136.7
Durables	129.2	128.4	129.5	129.6	129.3	129.2	128.6	128.0	127.4	127.2	127.3	127.3	127.5	127.7	127.7
Services	174.1	176.5	174.9	175.2	175.3	175.5	176.4	177.1	177.4	177.7	178.0	178.1	178.2	178.7	179.1
Rent of shelter[3]	159.9	164.7	163.0	163.5	163.7	163.9	164.5	165.3	165.8	165.8	166.2	166.3	166.6	167.4	168.1
Transporatation services	178.3	182.6	181.3	182.3	182.8	182.4	182.0	182.9	182.1	182.3	184.2	184.0	183.9	184.9	185.3
Other services	198.1	206.4	203.5	204.1	204.6	205.0	205.7	205.9	207.4	209.0	209.4	209.5	209.9	210.5	211.2
Special indexes:															
All items less food	154.3	157.6	156.8	157.1	157.3	157.3	157.5	157.5	157.8	158.4	158.6	158.5	158.1	158.1	158.4
All items less shelter	151.0	154.0	153.5	153.7	153.8	153.8	153.8	153.6	153.9	154.6	154.8	154.7	154.2	154.2	154.1
All items less medical care	150.7	154.0	153.2	153.5	153.6	153.6	153.8	153.8	154.2	154.7	154.9	154.9	154.5	154.7	154.8
Commodities less food	132.8	133.6	134.0	134.2	134.6	134.4	133.5	132.5	132.9	133.7	133.9	133.5	132.5	131.8	131.8
Nondurables less food	134.3	136.2	136.0	136.4	137.1	136.9	135.8	134.7	135.6	137.1	137.3	136.7	135.0	133.5	133.5
Nondurables less food and apparel	139.3	141.6	141.8	141.1	141.4	141.4	141.1	140.4	141.9	142.9	142.4	141.7	140.7	139.2	138.3
Nondurables	143.3	146.2	145.7	146.0	146.4	146.2	145.7	145.3	146.0	147.0	147.2	147.0	146.2	145.9	145.6
Services less rent of shelter[3]	162.7	167.6	166.2	166.3	166.4	166.5	167.7	168.2	168.2	168.8	169.0	169.1	168.8	169.1	169.2
Services less medical care services	166.2	171.2	169.6	169.9	170.0	170.1	171.1	171.8	172.0	172.4	172.7	172.8	172.7	173.2	173.6
Energy	109.8	111.1	112.7	110.7	109.6	109.5	111.8	110.8	112.2	113.5	111.0	110.1	107.7	105.0	102.4
All items less energy	160.4	164.1	163.0	163.5	163.9	163.9	163.8	164.0	164.2	164.6	165.2	165.3	165.2	165.8	166.3
All items less food and energy	162.3	166.0	164.8	165.5	165.9	165.9	165.8	165.9	166.0	166.5	167.1	167.2	167.1	167.5	168.2
Commodities less food and energy	140.9	141.9	141.7	142.5	143.1	142.9	141.8	141.1	140.8	141.5	142.2	142.2	141.5	141.5	142.1
Energy commodities	105.9	105.9	108.6	106.5	105.8	105.5	105.5	103.4	106.7	108.1	105.8	104.0	101.6	97.7	94.3
Services less energy	176.8	182.2	180.4	181.0	181.3	181.4	181.9	182.6	183.0	183.3	183.9	184.0	184.3	185.1	185.8

[1] Not seasonally adjusted.

[2] Indexes on a December 1997 = 100 base.

[3] Indexes on a December 1982 = 100 base.

[4] Indexes on a December 1988 = 100 base.

– Data not available.

NOTE: Index applies to a month as a whole, not to any specific data.

29. Consumer Price Index: U.S. city average and available local area data: all items

[1982–84 = 100, unless otherwise indicated]

Area	Pricing schedule[1]	All Urban Consumers							Urban Wage Earners						
		1997					1998		1997					1998	
		Jan.	Feb.	Oct.	Nov.	Dec.	Jan.	Feb.	Jan.	Feb.	Oct.	Nov.	Dec.	Jan.	Feb.
U.S. city average	M	159.1	159.6	161.6	161.5	161.3	161.6	161.9	156.3	156.8	158.5	158.5	158.2	158.4	158.5
Region and area size[2]															
Northeast urban	M	166.2	166.9	168.7	168.5	168.4	168.8	169.1	163.5	164.2	165.8	165.7	165.5	165.7	165.9
Size A—More than 1,500,000	M	166.8	167.7	169.5	169.3	169.1	169.5	170.1	163.1	163.9	165.5	165.5	165.2	165.4	165.8
Size B/C—50,000 to 1,500,000[3]	M	100.0	100.2	101.4	101.3	101.3	101.6	101.4	100.0	100.1	101.2	101.1	101.1	101.3	101.1
Midwest urban[4]	M	155.5	155.9	157.7	157.7	157.3	157.6	158.0	152.1	152.4	154.0	154.0	153.7	153.9	154.2
Size A—More than 1,500,000	M	156.0	156.5	158.4	158.4	158.1	158.5	158.9	151.9	152.3	153.9	153.8	153.6	153.9	154.2
Size B/C—50,000 to 1,500,000[3]	M	100.0	100.2	101.3	101.3	101.0	101.2	101.6	100.0	100.1	101.2	101.2	101.0	101.1	101.4
Size D—Nonmetropolitan (less than 50,000)	M	152.2	152.1	153.2	153.7	153.0	152.9	152.7	150.5	150.3	151.1	151.6	151.0	150.9	150.8
South urban	M	155.7	156.1	157.8	157.8	157.3	157.6	157.8	154.2	154.5	156.1	156.2	155.6	155.8	155.7
Size A—More than 1,500,000	M	154.9	155.2	156.7	156.4	156.3	156.6	156.7	153.1	153.2	154.7	154.5	154.2	154.4	154.3
Size B/C—50,000 to 1,500,000[3]	M	100.3	100.6	101.8	101.9	101.3	101.5	101.6	100.2	100.5	101.5	101.7	101.1	101.2	101.1
Size D—Nonmetropolitan (less than 50,000)	M	154.8	155.5	156.9	157.1	157.0	157.5	157.0	155.3	155.8	157.3	157.5	157.5	157.6	158.0
West urban	M	159.6	160.1	162.8	162.8	162.8	163.0	163.2	156.3	156.8	159.3	159.2	159.2	159.4	159.4
Size A—More than 1,500,000	M	159.6	160.1	163.1	162.8	163.1	163.3	163.6	154.7	155.2	157.9	157.7	157.9	158.0	158.0
Size B/C—50,000 to 1,500,000[3]	M	100.4	100.8	102.1	102.4	102.0	102.3	102.3	100.5	100.9	102.1	102.3	101.9	102.2	102.2
Size classes:															
A[5]	M	143.6	144.1	146.0	145.8	145.7	146.0	146.4	142.5	143.0	144.7	144.6	144.4	144.6	144.8
B/C[3]	M	100.2	100.5	101.7	101.7	101.4	101.6	101.7	100.1	100.4	101.5	101.5	101.2	101.3	101.3
D	M	155.9	156.2	157.6	157.8	157.5	157.7	157.8	155.3	155.4	156.7	156.9	156.7	156.7	156.8
Selected local areas[6]															
Chicago–Gary–Kenosha, IL–IN–WI	M	160.4	161.1	162.5	162.9	162.8	162.8	163.1	155.3	155.9	156.9	157.2	157.3	157.3	157.4
Los Angeles–Riverside–Orange County, CA	M	159.1	159.2	161.1	160.7	161.2	161.0	161.1	153.6	153.6	155.4	154.9	155.3	155.1	155.0
New York, NY–Northern NJ–Long Island, NY–NJ–CT–PA	M	169.1	170.1	172.3	172.0	171.9	172.1	172.7	165.1	166.2	168.1	168.0	167.7	167.7	168.2
Boston–Brockton–Nashua, MA–NH–ME–CT	1	167.7	–	–	169.4	–	171.2	–	166.6	–	–	167.8	–	169.3	–
Cleveland–Akron, OH	1	153.8	–	–	157.1	–	158.2	–	146.2	–	–	149.1	–	150.0	–
Dallas–Ft Worth, TX	1	–	150.7	152.8	–	152.5	152.1	–	–	150.8	152.8	–	152.7	152.2	–
Washington–Baltimore, DC–MD–VA–WV[7]	1	100.4	–	–	100.5	–	101.0	–	100.4	–	–	100.4	–	100.8	–
Atlanta, GA	1	–	–	–	–	159.4	–	159.5	–	–	–	–	156.8	–	156.6
Detroit–Ann Arbor–Flint, MI	1	–	155.4	157.9	–	157.1	–	158.5	–	150.3	152.4	–	151.7	–	152.9
Houston–Galveston–Brazoria, TX	1	–	144.5	147.3	–	145.6	–	146.1	–	143.6	146.3	–	144.5	–	144.7
Miami–Ft. Lauderdale, FL	2	158.1	–	–	159.5	159.3	–	160.2	156.0	–	–	157.0	156.8	–	157.3
Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD	2	165.1	165.8	167.7	166.4	166.4	–	167.0	164.4	164.9	166.8	165.9	165.7	–	166.1
San Francisco–Oakland–San Jose, CA	2	157.0	157.9	162.5	162.6	162.6	–	163.2	154.1	155.0	159.5	159.5	159.4	–	159.6
Seattle–Tacoma–Bremerton, WA	2	–	–	–	–	165.0	–	166.5	–	–	–	–	160.6	–	162.2

[1] Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:

M—Every month.

1—January, March, May, July, September, and November.

2—February, April, June, August, October, and December.

[2] Regions defined as the four Census regions.

[3] Indexes on a December 1996 = 100 base.

[4] The "North Central" region has been renamed the "Midwest" region by the Census Bureau. It is composed of the same geographic entities.

[5] Indexes on a December 1986 = 100 base.

[6] In addition, the following metropolitan areas are published semiannually and appear in tables 34 and 39 of the January and July issues of the *CPI Detailed Report*: Anchorage, AK; Cincinnati–Hamilton, OH–KY–IN; Denver–Boulder–Greeley, CO; Honolulu, HI; Kansas City, MO–KS; Milwaukee–Racine, WI; Minneapolis–St. Paul, MN–WI; Pittsburgh, PA; Portland–Salem, OR–WA; St Louis, MO–IL; San Diego, CA; Tampa–St. Petersburg–Clearwater, FL.

[7] Indexes on a November 1996 = 100 base.

– Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Each local index has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error. As a result, local area indexes show greater volatility than the national index, although their long-term trends are similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in their escalator clauses.

Index applies to a month as a whole, not to any specific date.

30. Annual data: Consumer Price Index, U.S. city average, all items and major groups

[1982–84 = 100]

Series	1989	1990	1991	1992	1993	1994	1995	1996	1997
Consumer Price Index for All Urban Consumers:									
All items:									
Index	124.0	130.7	136.2	140.3	144.5	148.2	152.4	156.9	160.5
Percent change	4.8	5.4	4.2	3.0	3.0	2.6	2.8	3.0	2.3
Food and beverages:									
Index	124.9	132.1	136.8	138.7	141.6	144.9	148.9	153.7	157.7
Percent change	5.7	5.8	3.6	1.4	2.1	2.3	2.8	3.2	2.6
Housing:									
Index	123.0	128.5	133.6	137.5	141.2	144.8	148.5	152.8	156.8
Percent change	3.8	4.5	4.0	2.9	2.7	2.5	2.6	2.9	2.6
Apparel:									
Index	118.6	124.1	128.7	131.9	133.7	133.4	132.0	131.7	132.9
Percent change	2.8	4.6	3.7	2.5	1.4	–.2	–1.0	–0.2	.9
Transportation:									
Index	114.1	120.5	123.8	126.5	130.4	134.3	139.1	143.0	144.3
Percent change	5.0	5.6	2.7	2.2	3.1	3.0	3.6	2.8	0.9
Medical care:									
Index	149.3	162.8	177.0	190.1	201.4	211.0	220.5	228.2	234.6
Percent change	7.7	9.0	8.7	7.4	5.9	4.8	4.5	3.5	2.8
Other goods and services:									
Index	147.7	159.0	171.6	183.3	192.9	198.5	206.9	215.4	224.8
Percent change	7.8	7.7	7.9	6.8	5.2	2.9	4.2	4.1	4.4
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	122.6	129.0	134.3	138.2	142.1	145.6	149.8	154.1	157.6
Percent change	4.8	5.2	4.1	2.9	2.8	2.5	2.9	2.9	2.3

31. Producer Price Indexes, by stage of processing

[1982 = 100]

Grouping	Annual average		1997											1998	
	1996	1997[p]	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Finished goods	131.3	131.8	132.2	132.1	131.6	131.6	131.6	131.3	131.7	131.8	132.3	131.8	131.1	130.2	130.1
Finished consumer goods	129.5	130.2	130.6	130.4	129.8	130.0	130.0	129.7	130.3	130.5	130.7	130.1	129.4	128.2	128.1
Finished consumer foods	133.6	134.5	133.8	135.2	134.3	135.2	134.0	134.0	134.9	134.7	135.1	134.5	134.2	132.8	133.6
Finished consumer goods excluding foods	127.6	128.2	129.0	128.2	127.7	127.6	128.1	127.6	128.1	128.6	128.7	128.1	127.2	126.0	125.5
Nondurable goods less food	123.3	124.3	124.9	123.8	123.2	123.5	124.4	124.1	124.8	125.8	124.6	123.8	122.8	121.3	120.6
Durable goods	134.2	133.8	135.0	135.0	134.5	133.6	133.4	132.4	132.3	131.4	134.7	134.4	133.9	133.6	133.5
Capital equipment	138.3	138.3	138.9	138.8	138.6	138.1	138.1	137.8	137.7	137.2	138.5	138.4	138.0	138.0	137.9
Intermediate materials, supplies, and components	125.7	125.6	126.1	125.6	125.3	125.4	125.8	125.5	125.8	126.0	125.5	125.6	125.0	124.2	124.0
Materials and components for manufacturing	128.6	128.3	128.4	128.6	128.4	128.4	128.3	128.2	128.3	128.3	128.0	128.4	128.0	127.5	127.5
Materials for food manufacturing	125.3	123.2	122.9	124.1	123.8	123.9	122.7	122.3	122.9	123.1	122.4	124.4	123.0	119.7	122.1
Materials for nondurable manufacturing	130.5	129.7	129.9	129.4	129.0	129.1	129.0	129.3	129.7	129.8	129.9	130.5	130.3	130.1	129.5
Materials for durable manufacturing	131.3	132.8	132.6	133.4	133.4	133.4	133.7	133.2	133.2	133.0	132.3	132.2	131.4	130.5	130.7
Components for manufacturing	126.9	126.4	126.8	126.7	126.6	126.5	126.4	126.4	126.2	126.2	126.0	126.0	125.9	126.0	126.0
Materials and components for construction	143.6	146.5	145.7	146.2	146.8	147.2	147.0	147.2	147.1	146.8	146.4	146.6	146.6	146.4	146.7
Processed fuels and lubricants	90.0	89.3	92.1	88.7	87.0	87.2	89.8	88.9	90.0	91.0	89.1	88.2	86.2	83.3	82.0
Containers	141.1	135.9	136.9	136.0	135.1	134.6	134.2	134.1	133.4	135.4	136.4	137.3	139.6	140.7	140.8
Supplies	135.9	135.9	135.5	135.8	136.0	136.2	136.0	135.9	135.8	136.2	135.8	136.0	135.9	135.5	135.2
Crude materials for further processing	113.8	110.9	116.1	107.6	107.9	110.4	107.1	107.1	107.5	108.5	112.7	113.8	107.4	102.7	100.4
Foodstuffs and feedstuffs	121.5	112.2	111.0	114.1	116.7	117.4	111.3	112.0	111.6	110.6	110.1	110.2	108.8	105.4	105.1
Crude nonfood materials	104.5	106.0	115.2	99.4	98.1	101.8	100.5	99.9	100.9	103.2	110.3	112.0	102.5	97.1	93.5
Special groupings:															
Finished goods, excluding foods	130.5	130.9	131.7	131.1	130.7	130.5	130.9	130.4	130.7	130.9	131.3	130.9	130.2	129.3	129.0
Finished energy goods	83.2	83.4	85.2	83.0	81.8	82.2	83.6	83.1	84.2	85.3	83.2	82.0	80.2	77.4	75.8
Finished goods less energy	139.6	140.2	140.2	140.7	140.3	140.3	139.9	139.7	139.9	139.7	140.9	140.6	140.3	139.9	140.2
Finished consumer goods less energy	140.1	141.0	140.7	141.4	141.0	141.1	140.6	140.3	140.7	140.6	141.8	141.4	141.1	140.6	141.1
Finished goods less food and energy	142.0	142.5	142.7	142.8	142.7	142.3	142.2	141.9	141.8	141.6	143.0	142.9	142.7	142.7	142.8
Finished consumer goods less food and energy	144.3	145.1	145.1	145.3	145.2	144.9	144.8	144.4	144.4	144.4	146.0	145.7	145.6	145.6	145.8
Consumer nondurable goods less food and energy	151.4	153.2	152.3	152.7	153.0	153.0	153.1	153.2	153.3	154.2	154.3	153.9	154.1	154.4	154.9
Intermediate materials less foods and feeds	125.6	125.7	126.2	125.6	125.2	125.3	125.7	125.6	125.8	126.1	125.6	125.6	125.2	124.5	124.3
Intermediate foods and feeds	128.1	125.4	124.8	127.2	127.5	128.3	126.4	124.6	124.6	126.0	122.6	124.3	123.3	118.8	118.9
Intermediate energy goods	89.8	89.0	91.8	88.5	86.7	87.0	89.5	88.6	89.7	90.7	88.8	88.0	85.9	83.0	81.8
Intermediate goods less energy	133.6	133.7	133.6	133.8	133.8	133.9	133.7	133.7	133.7	133.8	133.5	133.8	133.7	133.3	133.3
Intermediate materials less foods and energy	134.0	134.2	134.2	134.2	134.2	134.2	134.2	134.2	134.2	134.3	134.2	134.4	134.3	134.3	134.2
Crude energy materials	85.0	86.8	98.0	77.1	76.4	80.8	79.2	79.1	79.7	83.2	92.8	95.4	83.4	77.3	72.3
Crude materials less energy	130.0	123.4	123.3	125.7	126.7	127.5	123.1	123.1	123.3	122.2	121.5	121.4	120.0	116.8	116.8
Crude nonfood materials less energy	155.8	156.5	158.9	159.6	156.4	157.8	157.4	155.6	157.5	156.0	155.0	154.1	152.7	150.1	151.0

32. Producer Price Indexes for the net output of major industry groups

[December 1984 = 100, unless otherwise indicated]

SIC	Industry	Annual average		1997										1998	
		1996	1997[P]	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
–	**Total mining industries**	84.4	85.7	95.1	78.8	77.6	80.8	79.9	79.5	80.2	82.9	90.2	91.9	82.8	77.9	74.5
10	Metal mining	92.1	85.8	88.5	90.9	87.7	89.7	89.4	85.7	86.4	84.0	83.2	78.8	74.1	73.1	75.8
12	Coal mining (12/85 = 100)	91.4	92.1	91.3	92.8	95.0	91.7	92.6	91.5	91.6	91.9	91.3	91.0	92.2	92.1	89.7
13	Oil and gas extraction (12/85 = 100)	84.8	87.1	99.6	77.3	75.5	80.2	78.9	78.8	79.7	83.5	93.4	96.2	84.1	77.6	73.2
14	Mining and quarrying of nonmetallic minerals, except fuels	127.1	128.7	127.7	127.7	128.1	128.3	128.9	129.2	129.2	129.3	129.6	129.9	129.7	130.3	131.0
–	**Total manufacturing industries**	127.1	127.5	127.9	127.8	127.7	127.6	127.2	126.9	127.4	127.3	127.6	127.5	127.0	126.3	126.2
20	Food and kindred products	127.1	127.9	127.1	128.1	128.3	128.9	128.3	128.0	128.6	127.9	127.5	127.5	127.1	125.7	126.1
21	Tobacco manufactures	199.1	210.6	201.2	203.3	208.4	209.2	209.6	209.4	209.4	219.4	219.4	218.9	219.6	219.3	223.8
22	Textile mill products	118.2	118.7	118.8	118.8	118.2	118.5	118.6	118.8	118.8	118.9	119.1	118.7	118.7	118.7	119.6
23	Apparel and other finished products made from fabrics and similar materials	122.3	123.2	122.9	123.2	122.9	123.3	123.4	123.4	123.5	123.7	123.4	123.3	123.5	124.1	124.4
24	Lumber and wood products, except furniture	153.5	158.9	158.2	159.3	159.9	160.7	159.8	160.1	159.6	158.9	157.3	158.3	158.4	157.5	158.6
25	Furniture and fixtures	136.2	138.2	137.6	137.7	138.0	138.2	138.2	138.5	138.3	138.6	138.6	138.8	138.8	139.2	139.6
26	Paper and allied products	138.6	133.5	133.5	132.5	131.5	131.5	131.7	132.0	132.8	134.1	134.6	135.9	137.2	137.7	137.3
27	Printing, publishing, and allied industries	165.6	169.0	168.1	168.0	168.5	168.2	168.4	168.7	168.9	169.2	170.7	170.6	171.2	172.5	173.1
28	Chemicals and allied products	145.8	147.1	146.8	146.9	147.0	147.0	147.0	147.1	147.2	147.1	147.3	147.3	147.1	147.6	147.4
29	Petroleum refining and related products	87.4	85.5	91.2	87.3	85.8	85.5	83.6	81.3	85.3	86.1	84.8	83.7	79.1	73.7	70.6
30	Rubber and miscellaneous plastics products	123.1	122.8	122.8	122.4	122.8	122.9	122.9	123.0	123.1	122.9	122.7	122.8	122.7	122.6	122.6
31	Leather and leather products	134.7	137.2	137.3	137.2	137.4	136.9	136.2	136.9	136.9	137.0	137.5	137.8	137.6	137.7	137.5
32	Stone, clay, glass, and concrete products	125.8	127.4	126.9	127.1	127.5	127.6	127.4	127.4	127.5	127.5	127.8	127.9	127.8	127.9	128.0
33	Primary metal industries	123.7	124.7	124.0	124.8	125.0	125.0	125.4	125.2	125.2	125.2	124.8	124.5	123.8	123.4	123.1
34	Fabricated metal products, except machinery and transportation transportation equipment	126.2	127.6	127.0	127.1	127.2	127.4	127.5	127.7	127.9	128.0	128.1	128.1	128.1	128.3	128.5
35	Machinery, except electrical	119.2	118.5	119.0	119.1	119.1	118.5	118.3	118.4	118.3	118.2	118.1	118.1	118.1	118.2	118.0
36	Electrical and electronic machinery, equipment, and supplies	113.2	111.6	112.2	112.2	112.0	111.8	111.8	111.7	111.1	111.1	110.8	111.1	110.8	110.7	110.6
37	Transportation	134.2	134.2	135.4	135.3	134.8	133.9	133.8	132.8	132.8	131.8	135.0	134.7	134.1	133.8	133.8
38	Measuring and controlling instruments; photographic, medical, and optical goods; watches and clocks	125.0	125.7	125.4	125.5	125.7	125.7	125.3	125.7	125.8	125.8	125.7	125.9	125.9	126.0	126.4
39	Miscellaneous manufacturing industries (12/85 = 100)	127.8	129.1	128.7	128.9	129.1	129.1	129.1	129.0	129.1	129.2	129.4	129.3	129.3	129.5	129.7
	Service industries:															
42	Motor freight transportation and warehousing (06/93 = 100)	106.3	108.9	108.5	108.6	108.8	108.8	109.0	109.1	109.3	109.4	109.3	109.0	109.1	110.4	110.8
43	U.S. Postal Service (06/89 = 100)	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3
44	Water transportation (12/92 = 100)	103.7	104.1	104.2	104.1	104.2	104.3	104.8	104.4	104.7	103.8	104.6	103.2	103.8	102.9	101.9
45	Transportation by air (12/92 = 100)	121.1	125.5	128.9	124.6	125.1	125.1	126.2	126.5	125.4	122.5	123.7	124.0	124.2	122.5	123.7
46	Pipelines, except natural gas (12/92 = 100)	104.6	98.8	98.8	98.8	98.8	98.9	98.9	98.7	98.7	98.7	98.7	98.7	98.7	99.3	99.3

33. Annual data: Producer Price Indexes, by stage of processing

[1982 = 100]

Index	1989	1990	1991	1992	1993	1994	1995	1996	1997[P]
Finished goods									
Total	113.6	119.2	121.7	123.2	124.7	125.5	127.9	131.3	131.8
Foods	118.7	124.4	124.1	123.3	125.7	126.8	129.0	133.6	134.5
Energy	65.7	75.0	78.1	77.8	78.0	77.0	78.1	83.2	83.4
Other	122.1	126.6	131.1	134.2	135.8	137.1	140.0	142.0	142.5
Intermediate materials, supplies, and components									
Total	112.0	114.5	114.4	114.7	116.2	118.5	124.9	125.7	125.6
Foods	112.7	117.9	115.3	113.9	115.6	118.5	119.5	125.3	123.2
Energy	76.1	85.5	85.1	84.3	84.6	83.0	84.1	89.8	89.0
Other	120.2	120.9	121.4	122.0	123.8	127.1	135.2	134.0	134.2
Crude materials for further processing									
Total	103.1	108.9	101.2	100.4	102.4	101.8	102.7	113.8	110.9
Foods	111.2	113.1	105.5	105.1	108.4	106.5	105.8	121.5	112.2
Energy	75.9	85.9	80.4	78.8	76.7	72.1	69.4	85.0	86.8
Other	95.8	107.3	97.5	94.2	94.1	97.0	105.8	105.7	103.5

34. U.S. export price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1997											1998	
		Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
0	**Food and live animals**	102.3	103.4	103.1	101.2	98.5	97.8	99.7	99.5	98.5	97.6	96.7	94.9	92.4
01	Meat and meat preparations	94.5	96.4	96.7	95.7	95.3	95.7	96.2	95.2	95.2	96.1	94.6	91.3	90.8
04	Cereals and cereal preparations	102.8	104.9	104.5	99.7	92.3	89.9	93.2	95.0	93.5	94.9	94.4	88.9	91.5
05	Vegetables, fruit, and nuts, prepared fresh or dry	101.9	101.2	100.1	100.7	101.6	104.3	103.3	97.6	98.2	93.4	92.0	99.8	88.2
2	**Crude materials, inedible, except fuels**	92.2	93.2	92.6	93.0	93.4	93.6	92.7	91.6	88.7	88.9	87.8	84.8	85.3
21	Hides, skins, and furskins, raw	114.7	115.6	113.8	110.0	100.8	96.0	98.3	100.1	101.6	103.6	102.6	80.9	83.3
22	Oilseeds and oleaginous fruits	126.7	133.1	134.0	136.1	134.6	128.6	120.5	120.2	108.3	118.2	116.5	110.8	113.1
24	Cork and wood	98.3	96.0	94.2	94.2	93.2	92.8	92.4	90.9	88.6	85.8	85.7	86.0	86.0
25	Pulp and waste paper	59.4	58.6	58.9	60.5	65.9	69.1	71.4	68.2	69.4	68.3	66.8	64.2	65.4
26	Textile fibers and their waste	83.2	85.2	83.5	83.3	83.4	84.2	84.4	83.9	83.4	81.2	80.0	78.2	78.0
27	Crude fertilizers and crude minerals	97.6	96.9	96.9	97.3	97.8	97.9	97.9	97.9	97.9	97.8	97.4	97.5	97.2
28	Metalliferous ores and metal scrap	88.8	89.7	89.4	89.6	91.7	95.7	96.3	94.4	90.0	85.9	83.9	82.1	81.4
3	**Mineral fuels, lubricants, and related products**	112.3	111.4	110.7	110.7	110.9	110.9	111.2	111.8	112.6	112.0	112.8	109.5	108.7
32	Coal, coke, and briquettes	102.2	102.2	102.5	102.4	102.0	101.6	101.6	101.9	102.2	101.8	101.3	101.0	101.3
33	Petroleum, petroleum products, and related materials	121.4	119.5	119.9	120.0	119.4	120.9	121.3	121.8	121.3	120.1	118.9	116.1	114.4
4	**Animal and vegetable oils, fats, and waxes**	97.6	96.5	93.4	93.6	94.7	93.3	93.3	94.9	97.9	106.8	106.5	104.5	101.3
5	**Chemicals and related products, n.e.s.**	96.4	96.8	96.6	96.7	96.5	96.4	95.5	95.5	95.4	95.2	94.9	94.8	94.5
54	Medicinal and pharmaceutical products	101.2	100.9	101.6	101.5	101.5	101.1	101.1	101.2	100.8	100.9	100.9	101.9	101.6
55	Essential oils; polishing and cleaning preparations	102.5	102.2	102.2	102.8	102.9	103.1	102.6	103.7	103.6	102.1	101.9	101.3	102.0
57	Plastics in primary forms (12/92 = 100)	95.8	97.8	97.8	97.6	97.1	95.9	94.0	93.7	93.9	93.6	93.1	92.9	92.5
58	Plastics in nonprimary forms (12/92 = 100)	98.4	98.7	98.5	99.3	99.1	99.0	99.0	98.9	98.7	98.5	98.7	100.1	100.0
59	Chemical materials and products, n.e.s.	103.1	103.5	104.0	104.2	103.9	103.9	104.0	103.6	103.4	103.0	101.9	101.9	101.6
6	**Manufactured goods classified chiefly by materials**	97.5	97.5	97.8	97.7	98.2	98.5	98.6	98.7	98.7	98.9	98.6	98.3	98.6
62	Rubber manufactures, n.e.s.	102.6	102.7	103.0	103.1	103.2	103.1	102.2	101.9	102.2	102.1	102.0	101.8	101.8
64	Paper, paperboard, and articles of paper, pulp, and paperboard	83.2	83.1	82.3	82.9	83.5	84.4	85.3	85.0	85.3	85.2	85.1	84.7	85.0
66	Nonmetallic mineral manufactures, n.e.s.	104.1	104.0	104.0	104.1	104.3	104.5	104.6	106.1	106.1	106.3	107.1	106.7	107.3
68	Nonferrous metals	92.4	91.7	92.0	91.7	93.4	92.6	93.3	93.2	91.9	93.4	91.0	89.4	91.1
7	**Machinery and transport equipment**	100.5	100.5	100.6	100.4	100.6	100.5	100.6	100.1	100.0	100.1	99.8	99.7	99.6
71	Power generating machinery and equipment	105.2	105.6	105.9	106.0	106.0	105.9	106.2	106.2	106.2	106.3	106.2	106.8	106.8
72	Machinery specialized for particular industries	103.8	103.7	103.8	104.3	104.2	104.1	104.4	104.5	104.5	104.5	104.9	104.6	105.1
74	General industrial machines and parts, n.e.s., and machine parts	103.8	104.1	104.6	104.7	105.2	105.0	105.3	105.2	105.4	105.4	105.4	105.6	105.6
75	Computer equipment and office machines	86.9	86.7	86.3	85.1	84.7	84.0	84.0	83.7	83.0	82.7	81.6	80.8	80.5
76	Telecommunications and sound recording and reproducing apparatus and equipment	100.2	99.9	99.9	99.6	99.6	99.7	99.7	99.2	99.5	99.4	98.7	98.7	98.6
77	Electrical machinery and equipment	96.9	96.7	96.9	96.8	96.5	96.5	96.7	95.1	94.8	94.9	94.5	94.2	93.9
78	Road vehicles	101.5	101.8	101.9	101.7	101.8	102.0	101.9	101.7	101.8	101.9	102.0	102.0	102.0
87	**Professional, scientific, and controlling instruments and apparatus**	103.7	103.8	103.1	103.3	103.4	103.5	103.5	103.4	103.3	103.3	103.5	103.5	103.7

35. U.S. import price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1997											1998	
		Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
0	**Food and live animals**	97.2	101.8	99.5	102.1	103.7	100.5	100.9	101.3	100.4	99.4	99.6	99.2	97.7
01	Meat and meat preparations	97.9	103.5	104.7	103.5	101.9	101.9	104.2	103.9	102.7	102.7	104.2	101.3	101.3
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	100.1	99.7	100.4	102.1	103.6	104.4	104.6	104.5	107.4	107.3	105.6	105.4	106.6
05	Vegetables, fruit, and nuts, prepared fresh or dry	104.1	111.1	101.5	101.0	101.7	101.2	103.2	103.4	103.1	103.8	102.5	102.9	94.3
07	Coffee, tea, cocoa, spices, and manufactures thereof	85.8	98.6	98.1	107.8	118.4	99.6	97.5	100.0	92.1	86.2	92.1	93.9	96.8
1	**Beverages and tobacco**	106.7	106.9	107.2	107.0	107.5	107.7	107.7	107.8	107.9	108.4	108.6	109.0	109.5
11	Beverages	103.0	103.3	103.6	103.5	104.0	104.2	104.2	104.3	104.4	105.1	105.2	105.4	105.9
2	**Crude materials, inedible, except fuels**	102.1	99.0	97.6	99.8	97.4	97.3	96.8	96.6	94.8	94.0	93.5	91.7	95.7
23	Crude rubber (including synthetic and reclaimed)	88.1	88.3	84.8	82.1	83.9	77.7	77.2	74.5	72.4	71.2	69.1	65.3	70.4
24	Cork and wood	125.4	126.2	124.9	126.9	122.5	123.3	120.9	121.2	113.1	114.0	113.1	109.7	110.0
25	Pulp and waste paper	65.7	64.9	63.8	64.4	65.8	66.5	67.9	68.2	69.0	69.2	68.7	68.3	64.6
28	Metalliferous ores and metal scrap	102.6	103.0	106.0	105.6	105.8	104.6	104.7	104.5	103.7	102.5	102.3	100.3	100.0
29	Crude animal and vegetable materials, n.e.s.	148.2	105.2	94.3	118.1	97.3	102.1	101.8	103.1	113.2	104.8	107.0	108.6	158.2
3	**Mineral fuels, lubricants, and related products**	128.0	113.9	105.3	106.6	104.6	104.4	106.2	107.0	113.1	111.8	103.5	94.5	88.1
33	Petroleum, petroleum products, and related materials	123.8	113.1	104.8	106.4	104.0	103.0	105.1	105.5	111.5	107.8	100.3	90.8	83.9
34	Gas, natural and manufactured	170.7	125.9	113.7	112.0	113.3	119.8	119.7	123.7	132.0	149.7	133.4	127.6	124.2
5	**Chemicals and related products, n.e.s.**	97.9	97.8	96.6	96.5	96.4	96.2	96.4	96.2	95.6	95.2	95.2	94.1	93.9
52	Inorganic chemicals	102.7	101.5	101.1	100.8	99.0	97.9	98.6	99.7	99.7	99.0	97.3	93.0	93.0
53	Dying, tanning, and coloring materials	97.4	96.9	97.1	97.1	97.9	97.7	95.4	94.0	94.2	96.3	97.0	95.3	94.7
54	Medicinal and pharmaceutical products	96.6	96.0	96.0	95.4	96.3	96.3	96.2	95.7	96.2	96.2	96.8	96.4	95.6
55	Essential oils; polishing and cleaning preparations	98.7	98.2	98.8	98.7	97.0	96.9	97.8	96.9	97.4	96.6	97.5	96.2	96.3
57	Plastics in primary forms (12/92 = 100)	92.4	91.6	89.6	90.9	91.6	91.7	91.9	92.6	92.7	91.6	92.0	92.4	96.5
58	Plastics in nonprimary forms (12/92 = 100)	85.7	86.1	86.2	85.8	88.6	88.7	87.4	86.9	85.9	82.9	82.8	82.4	82.4
59	Chemical materials and products, n.e.s.	104.7	104.6	104.2	104.2	103.5	103.2	103.3	103.2	102.8	102.8	103.1	102.8	102.3
6	**Manufactured goods classified chiefly by materials**	95.4	96.0	95.9	96.4	96.8	96.6	96.5	96.8	96.7	96.6	96.0	95.1	94.7
62	Rubber manufactures, n.e.s.	97.9	97.4	97.5	97.4	97.6	96.7	95.8	95.1	95.3	95.4	95.5	95.2	95.2
64	Paper, paperboard, and articles of paper, pulp, and paperboard	83.8	85.0	85.6	87.9	87.5	87.6	88.0	88.8	88.9	89.7	88.5	86.7	86.7
66	Nonmetallic mineral manufactures, n.e.s.	103.6	103.2	102.8	103.2	102.6	103.0	102.5	102.1	102.2	102.2	101.7	101.3	100.7
68	Nonferrous metals	87.7	91.1	90.6	91.8	95.1	94.0	94.6	96.9	95.3	93.4	92.1	90.5	90.4
69	Manufactures of metals, n.e.s.	99.9	99.5	99.0	98.9	99.0	98.8	98.3	98.1	98.5	98.3	98.5	97.9	97.5
7	**Machinery and transport equipment**	96.8	96.5	96.0	95.5	95.7	95.4	95.0	94.8	94.5	94.3	94.0	93.6	93.2
72	Machinery specialized for particular industries	100.6	99.7	99.2	98.9	99.3	99.3	98.6	98.4	98.6	99.0	99.1	99.8	98.1
74	General industrial machines and parts, n.e.s., and machine parts	99.6	98.5	98.1	97.9	98.3	98.2	97.6	97.2	97.4	97.3	97.3	97.0	96.4
75	Computer equipment and office machines	85.6	84.4	83.2	81.9	81.2	80.2	78.9	78.2	77.1	76.7	76.8	75.3	74.3
76	Telecommunications and sound recording and reproducing apparatus and equipment	94.7	94.4	93.7	93.1	93.4	93.3	92.9	92.6	92.3	91.9	91.7	91.4	91.3
77	Electrical machinery and equipment	90.2	90.8	90.1	89.8	90.2	89.7	89.6	89.2	88.6	87.7	86.5	86.1	86.0
78	Road vehicles	100.6	100.8	100.6	100.4	100.8	100.9	101.1	101.3	101.6	101.6	101.5	101.4	101.4
85	Footwear	101.7	101.0	101.0	100.9	101.1	101.2	101.1	100.8	101.0	101.0	101.2	101.2	101.1
88	Photographic apparatus, equipment, and supplies, and optical goods, n.e.s.	96.0	95.3	95.6	94.3	94.4	95.1	94.4	93.6	93.4	92.6	93.1	92.3	92.2

36. U.S. export price indexes by end-use category

[1995 = 100]

Category	1997											1998	
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
ALL COMMODITIES	99.6	99.7	99.7	99.4	99.3	99.3	99.3	99.0	98.6	98.6	98.2	97.5	97.3
Foods, feeds, and beverages	104.3	106.1	105.8	104.6	102.3	101.2	101.8	101.8	99.8	100.2	99.3	96.9	95.0
Agricultural foods, feeds, and beverages	105.6	107.6	107.4	106.3	103.8	102.4	102.5	102.2	100.1	100.7	100.0	97.6	96.1
Nonagricultural (fish, beverages) food products	91.4	90.7	89.4	88.0	87.6	89.0	96.2	98.5	98.0	95.7	94.1	90.9	83.8
Industrial supplies and materials	95.3	95.3	95.3	95.2	95.5	95.8	95.4	95.1	94.8	94.5	93.7	92.5	92.3
Agricultural industrial supplies and materials	95.8	95.9	94.1	92.6	91.6	92.2	92.3	93.0	93.1	94.0	92.7	88.3	87.1
Fuels and lubricants	111.4	110.7	110.2	110.0	110.0	110.1	110.4	110.9	111.3	110.7	110.2	107.2	106.2
Nonagricultural supplies and materials, excluding fuel and building materials	92.3	92.5	92.8	92.8	93.3	93.6	93.2	92.8	92.4	92.3	91.4	90.6	90.5
Selected building materials	98.6	97.1	95.5	95.4	94.8	94.7	93.8	92.8	91.2	89.3	89.3	89.3	89.1
Capital goods	100.4	100.4	100.3	100.1	100.2	100.0	100.1	99.5	99.3	99.3	99.0	98.8	98.8
Electric and electrical generating equipment	100.3	100.5	100.7	100.6	101.1	101.2	102.2	101.8	101.9	102.2	102.3	101.9	101.3
Nonelectrical machinery	98.4	98.3	98.2	97.9	97.7	97.5	97.5	96.7	96.5	96.4	96.0	95.8	95.9
Automotive vehicles, parts, and engines	101.7	101.9	102.2	102.1	102.1	102.3	102.3	102.1	102.2	102.3	102.3	102.3	102.3
Consumer goods, excluding automotive	102.0	101.7	101.8	101.9	102.0	102.2	102.2	102.6	102.6	102.6	102.7	102.5	102.5
Nondurables, manufactured	101.6	101.4	101.1	101.2	101.5	101.7	101.7	102.3	102.1	102.0	102.1	102.1	102.2
Durables, manufactured	101.7	101.4	102.0	102.1	102.0	102.0	102.1	101.9	102.2	102.1	102.0	101.7	101.6
Agricultural commodities	103.5	105.1	104.7	103.4	101.3	100.2	100.3	100.2	98.4	99.1	98.3	95.6	94.2
Nonagricultural commodities	99.1	99.0	99.0	99.0	99.1	99.1	99.1	98.8	98.6	98.5	98.1	97.7	97.7

37. U.S. import price indexes by end-use category

[1995 = 100]

Category	1997											1998	
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
ALL COMMODITIES	100.7	99.4	98.3	98.3	98.2	98.0	97.9	97.8	98.0	97.6	96.6	95.4	94.6
Foods, feeds, and beverages	98.5	101.4	99.6	100.8	101.9	99.4	99.2	99.6	98.8	97.9	98.1	97.6	96.9
Agricultural foods, feeds, and beverages	97.8	101.8	99.0	100.3	101.3	97.5	97.3	97.9	96.3	95.2	95.7	95.2	93.8
Nonagricultural (fish, beverages) food products	100.1	100.1	100.9	101.8	103.1	104.2	104.1	104.1	105.2	105.2	104.1	104.0	105.0
Industrial supplies and materials	107.7	103.4	100.4	101.0	100.4	100.1	100.8	101.1	102.5	101.8	98.7	94.8	92.5
Fuels and lubricants	128.1	114.3	105.8	106.8	104.9	104.6	106.6	107.2	113.2	111.5	103.5	94.9	88.7
Petroleum and petroleum products	124.5	113.7	105.3	106.6	104.5	103.1	105.5	105.7	111.6	107.7	100.5	91.5	84.7
Paper and paper base stocks	79.0	79.8	80.1	82.0	81.9	82.1	82.7	83.4	83.7	84.4	83.3	81.5	80.6
Materials associated with nondurable supplies and materials	96.8	96.9	96.1	96.3	95.8	95.5	95.6	95.4	94.6	94.3	93.8	92.7	92.3
Selected building materials	114.0	114.7	113.7	114.8	112.3	112.8	111.7	111.6	107.6	108.3	107.6	105.0	104.6
Unfinished metals associated with durable goods	93.6	95.5	95.8	96.2	98.0	97.4	97.3	98.5	97.4	96.4	95.5	93.9	93.8
Nonmetals associated with durable goods	97.3	96.7	96.0	95.8	95.7	95.6	95.1	94.1	94.2	94.2	94.2	93.8	93.0
Capital goods	93.9	93.5	92.6	92.0	92.1	91.7	91.0	90.5	89.8	89.4	88.9	88.2	87.6
Electric and electrical generating equipment	98.4	97.6	97.6	97.3	97.1	96.9	97.1	96.8	96.8	96.6	96.0	95.5	95.8
Nonelectrical machinery	92.1	91.7	90.7	90.0	90.1	89.7	88.9	88.3	87.4	87.0	86.5	85.6	84.9
Automotive vehicles, parts, and engines	100.7	100.8	100.6	100.3	100.8	100.9	101.0	101.2	101.4	101.4	101.3	101.3	101.7
Consumer goods, excluding automotive	100.2	99.6	99.6	99.7	99.5	99.6	99.4	99.2	99.3	99.1	99.2	99.0	99.2
Nondurables, manufactured	100.6	100.5	100.8	101.0	101.0	100.9	100.8	100.8	101.1	100.8	101.0	101.0	100.9
Durables, manufactured	99.0	98.5	98.4	98.0	98.1	98.1	97.8	97.4	97.3	97.1	97.3	97.0	96.7
Nonmanufactured consumer goods	108.2	100.4	98.9	102.8	99.1	99.8	99.8	99.9	101.4	100.1	99.4	98.9	105.8

38. U.S. international price indexes for selected categories of services

[1990 = 100, unless otherwise indicated]

Category	1995	1996				1997			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Air freight (inbound) (9/90 = 100)	98.7	95.9	95.1	95.6	95.0	89.5	89.9	88.5	86.5
Air freight (outbound) (9/92 = 100)	99.7	99.1	99.4	98.9	99.2	99.8	99.2	99.6	98.0
Air passenger fares (U.S. carriers)	96.1	98.3	104.3	107.3	101.6	97.1	112.1	109.2	99.5
Air passenger fares (foreign carriers)	96.9	96.3	103.0	105.5	100.7	98.5	106.1	104.6	99.7
Ocean liner freight (inbound)	101.1	101.5	99.6	98.0	98.4	97.6	96.8	94.9	92.9

39. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

[1992 = 100]

Item	Quarterly indexes												
	1994	1995				1996				1997			
	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Business													
Output per hour of all persons	100.7	100.1	100.3	100.6	101.2	102.0	102.8	102.6	103.1	103.5	104.1	105.0	105.5
Compensation per hour	105.0	105.7	106.5	107.3	108.3	109.3	110.8	111.8	112.7	113.8	114.7	115.9	117.5
Real compensation per hour	98.3	98.2	98.2	98.4	98.8	98.9	99.4	99.6	99.6	100.0	100.5	101.1	101.9
Unit labor costs	104.3	105.5	106.1	106.7	107.0	107.2	107.8	108.9	109.3	110.0	110.2	110.4	111.4
Unit nonlabor payments	108.3	108.3	108.4	108.8	109.1	110.5	111.0	110.7	111.3	111.6	112.4	112.9	111.8
Implicit price deflator	105.8	106.5	107.0	107.4	107.8	108.4	108.9	109.6	110.0	110.6	111.0	111.3	111.5
Nonfarm business													
Output per hour of all persons	100.7	100.3	100.5	100.8	101.4	102.1	102.8	102.6	103.1	103.4	104.0	104.9	105.3
Compensation per hour	104.9	105.5	106.3	107.1	108.1	109.1	110.5	111.4	112.3	113.5	114.4	115.5	117.0
Real compensation per hour	98.2	98.1	98.1	98.3	98.6	98.7	99.1	99.3	99.3	99.7	100.2	100.7	101.4
Unit labor costs	104.2	105.2	105.8	106.3	106.7	106.9	107.5	108.6	109.0	109.8	110.0	110.1	111.0
Unit nonlabor payments	109.2	109.6	109.6	109.7	109.8	111.0	111.3	110.9	111.4	111.7	112.4	113.2	112.2
Implicit price deflator	106.0	106.8	107.2	107.5	107.8	108.4	108.8	109.4	109.8	110.5	110.9	111.2	111.5
Nonfinancial corporations													
Output per hour of all employees	103.7	102.9	103.4	104.7	105.4	106.0	107.1	107.8	108.3	108.8	109.4	111.1	–
Compensation per hour	104.5	105.1	105.9	106.6	107.5	108.3	109.7	110.7	111.5	112.6	113.5	114.7	–
Real compensation per hour	97.8	97.7	97.6	97.8	98.0	98.0	98.4	98.6	98.6	98.9	99.5	100.0	–
Total unit costs	100.3	101.6	101.8	101.1	101.2	101.4	101.4	101.5	101.5	101.8	102.0	101.5	–
Unit labor costs	100.8	102.2	102.4	101.9	102.0	102.1	102.4	102.7	102.9	103.5	103.7	103.2	–
Unit nonlabor costs	99.1	99.8	100.1	99.0	99.1	99.2	98.4	98.1	97.4	97.0	97.1	96.6	–
Unit profits	142.1	135.2	134.9	145.5	147.3	152.5	154.7	156.0	156.4	157.9	159.1	164.5	–
Unit nonlabor payments	111.0	109.6	109.7	111.9	112.4	114.0	114.0	114.1	113.7	113.8	114.3	115.4	–
Implicit price deflator	104.1	104.6	104.8	105.1	105.4	106.0	106.2	106.4	106.5	106.9	107.2	107.2	–
Manufacturing													
Output per hour of all persons	105.7	106.6	107.7	108.8	109.2	110.4	111.6	113.0	114.0	114.9	116.0	118.3	119.5
Compensation per hour	106.6	107.2	108.2	109.2	110.1	110.8	112.1	112.9	113.5	114.7	115.4	116.4	118.1
Real compensation per hour	99.8	99.6	99.8	100.2	100.4	100.2	100.5	100.6	100.3	100.8	101.1	101.5	102.5
Unit labor costs	100.9	100.6	100.5	100.4	100.8	100.3	100.4	99.9	99.5	99.8	99.5	98.4	98.9

40. Annual indexes of multifactor productivity and related measures, selected years

[1987 = 100, unless otherwise indicated]

Item	1960	1970	1973	1980	1988	1989	1990	1991	1992	1993	1994
Private business											
Productivity:											
Output per hour of all persons	53.5	74.8	83.0	89.1	100.9	101.0	101.9	102.9	105.9	106.4	107.3
Output per unit of capital services	115.9	115.1	120.1	105.8	101.3	101.3	99.8	97.0	98.1	99.1	100.7
Multifactor productivity	70.5	87.2	95.3	96.0	100.5	100.2	100.1	99.1	100.5	101.0	101.8
Output	37.8	57.4	67.9	79.9	104.3	107.0	107.9	106.5	109.3	112.5	117.4
Inputs:											
Labor input	66.7	74.2	78.7	86.8	104.2	107.2	107.8	106.5	107.5	110.4	114.8
Capital services	32.6	49.9	56.6	75.5	102.9	105.7	108.1	109.8	111.4	113.5	116.6
Combined units of labor and capital input	53.6	65.8	71.3	83.2	103.8	106.7	107.9	107.5	108.7	111.3	115.4
Capital per hour of all persons	46.2	65.0	69.2	84.2	99.6	99.7	102.1	106.1	108.0	107.4	106.6
Private nonfarm business											
Productivity:											
Output per hour of all persons	57.7	77.3	85.6	90.6	100.9	100.7	101.3	102.5	105.1	105.6	106.4
Output per unit of capital services	122.6	120.5	125.2	108.2	101.3	100.8	99.1	96.2	96.9	98.1	99.3
Multifactor productivity	74.9	89.9	98.1	97.7	100.5	99.9	99.4	98.5	99.6	100.2	100.7
Output	37.4	57.4	68.3	80.2	104.5	107.1	107.8	106.4	108.9	112.4	117.1
Inputs:											
Labor input	61.4	72.0	76.9	85.7	104.4	107.6	108.3	106.8	108.0	111.2	115.6
Capital services	30.5	47.7	54.5	74.2	103.2	106.2	108.8	110.6	112.4	114.7	118.0
Combined units of labor and capital input	49.9	63.9	69.6	82.1	104.0	107.2	108.5	107.9	109.3	112.2	116.3
Capital per hour of all persons	47.0	64.1	68.3	83.8	99.6	99.9	102.2	106.6	108.5	107.7	107.1
Manufacturing (1992 = 100)											
Productivity:											
Output per hour of all persons	41.3	55.3	62.7	71.1	91.4	92.5	94.2	96.4	100.0	102.2	104.8
Output per unit of capital services	132.5	125.9	137.1	110.1	109.4	107.9	103.9	99.3	100.0	101.0	102.3
Multifactor productivity	71.2	82.6	90.2	86.4	100.8	99.5	99.9	98.1	100.0	101.4	103.7
Output	38.0	57.6	69.2	76.4	97.6	99.2	98.8	96.9	100.0	103.6	108.7
Inputs:											
Hours of all persons	92.1	104.2	110.5	107.5	106.8	107.2	104.9	100.6	100.0	101.4	103.7
Capital services	28.7	45.7	50.5	69.4	89.2	92.0	95.1	97.6	100.0	102.6	106.2

– Data not available.

NOTE: Productivity and output in this table have not been revised for consistency with the December 1991 comprehensive revisions to the National Income and Product Accounts.

41. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

[1992 = 100]

Item	1960	1970	1973	1980	1988	1989	1990	1991	1993	1994	1995	1996	1997
Business													
Output per hour of all persons	51.4	70.5	78.4	84.2	94.6	95.4	96.1	96.7	100.2	100.6	100.5	102.6	104.5
Compensation per hour	13.6	23.6	29.0	54.5	83.5	85.8	90.7	95.1	102.6	104.3	106.9	111.1	115.4
Real compensation per hour	64.7	85.4	91.6	92.7	99.0	97.1	97.4	97.9	99.6	98.7	98.4	99.3	100.9
Unit labor costs	26.6	33.5	37.0	64.7	88.2	89.9	94.4	98.3	102.4	103.7	106.3	108.3	110.5
Unit nonlabor payments	24.6	30.6	36.6	59.6	84.1	91.3	93.5	96.6	102.7	106.8	108.7	110.9	112.2
Implicit price deflator	25.8	32.4	36.8	62.8	86.8	90.4	94.1	97.7	102.5	104.8	107.2	109.2	111.1
Nonfarm business													
Output per hour of all persons	54.8	72.6	80.7	86.0	95.2	95.7	96.2	96.9	100.1	100.5	100.7	102.6	104.3
Compensation per hour	14.3	23.8	29.2	54.8	83.6	85.8	90.6	95.1	102.3	104.1	106.7	110.8	115.0
Real compensation per hour	67.7	86.1	92.3	93.3	99.1	97.1	97.3	97.9	99.3	98.5	98.3	99.1	100.6
Unit labor costs	26.1	32.8	36.2	63.8	87.8	89.7	94.1	98.1	102.2	103.6	106.0	108.0	110.2
Unit nonlabor payments	24.0	30.3	34.3	58.6	83.8	90.7	93.2	96.8	103.1	107.4	109.7	111.2	112.4
Implicit price deflator	25.3	31.9	35.5	61.9	86.4	90.0	93.8	97.6	102.5	104.9	107.3	109.1	111.0
Nonfinancial corporations													
Output per hour of all employees	54.5	69.0	74.4	80.3	96.7	95.4	96.1	97.5	101.2	103.3	104.1	107.3	–
Compensation per hour	15.6	25.4	30.7	56.7	84.8	86.9	91.4	95.6	102.1	103.9	106.3	110.1	–
Real compensation per hour	73.9	91.7	97.2	96.5	100.6	98.4	98.1	98.5	99.1	98.4	97.9	98.4	–
Total unit costs	27.8	36.1	40.3	70.2	88.2	92.5	96.2	99.3	100.5	100.3	101.4	101.4	–
Unit labor costs	28.6	36.7	41.3	70.5	87.7	91.1	95.2	98.0	100.9	100.6	102.1	102.6	–
Unit nonlabor costs	25.3	34.3	37.5	69.2	89.7	96.3	99.1	103.0	99.4	99.7	99.5	98.3	–
Unit profits	47.7	42.0	52.8	64.4	103.8	96.0	94.6	93.9	113.3	134.5	140.8	154.9	–
Unit nonlabor payments	31.5	36.4	41.7	67.9	93.6	96.2	97.9	100.5	103.2	109.4	110.9	114.0	–
Implicit price deflator	29.6	36.6	41.5	69.7	89.6	92.8	96.1	98.8	101.7	103.4	105.0	106.3	–
Manufacturing													
Output per hour of all persons	41.2	55.1	62.6	71.0	91.4	92.6	94.3	96.4	102.2	104.7	108.1	112.1	117.1
Compensation per hour	14.9	23.8	28.6	55.8	84.0	86.8	91.0	95.7	102.9	105.6	108.7	112.1	116.1
Real compensation per hour	70.6	86.1	90.5	94.9	99.6	98.2	97.6	98.6	99.9	100.0	100.1	100.3	101.5
Unit labor costs	36.1	43.2	45.7	78.5	91.9	93.7	96.5	99.3	100.7	100.8	100.6	100.0	99.1
Unit nonlabor payments	26.6	30.1	37.0	79.5	91.2	96.8	100.1	99.6	101.1	103.0	107.8	–	–
Implicit price deflator	30.3	35.2	40.4	79.2	91.5	95.6	98.7	99.5	101.0	102.2	105.0	–	–

– Data not available.

42. Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994	1995
Iron mining, usable ore	101	50.8	70.0	76.1	79.3	103.1	98.4	88.5	85.0	83.3	86.9	85.0	95.9
Copper mining, recoverable metal	102	42.4	75.9	93.6	109.7	109.1	106.5	102.7	100.5	115.2	118.1	126.0	120.3
Coal mining	12	68.9	83.4	85.1	92.4	110.5	116.4	118.3	122.1	132.7	140.4	147.3	153.9
Crude petroleum and natural gas production	131	173.5	81.9	83.0	90.3	100.9	98.0	96.9	97.9	102.1	105.9	112.4	120.5
Nonmetallic minerals, except fuels	14	86.5	94.0	95.1	95.1	101.0	99.6	101.4	98.5	103.0	100.8	104.4	103.0
Meat packing plants	2011	65.1	93.6	98.3	98.7	100.9	97.9	96.8	100.2	104.5	105.1	101.0	101.7
Sausages and other prepared meats	2013	67.2	99.3	97.8	98.6	107.1	105.9	97.4	95.9	104.6	105.0	101.4	105.3
Poultry dressing and processing	2015	58.0	99.1	100.5	95.6	96.2	105.2	108.6	115.4	119.6	119.8	119.4	122.5
Cheese, natural and processed	2022	72.1	85.1	88.2	93.5	99.8	102.6	108.2	114.6	121.8	115.5	117.5	120.5
Fluid milk	2026	54.6	88.9	92.0	96.0	102.3	103.7	103.3	104.3	104.0	107.1	112.9	115.8
Canned fruits and vegetables	2033	70.1	87.4	92.8	99.1	98.7	92.9	93.8	100.1	101.5	106.6	101.5	109.3
Frozen fruits and vegetables	2037	77.9	99.7	95.2	103.3	94.0	98.0	90.0	94.6	96.4	102.8	109.3	111.1
Flour and other grain mill products	2041	68.5	91.7	95.8	95.9	102.5	102.5	107.9	108.3	111.9	122.2	126.8	117.6
Cereal breakfast foods	2043	65.6	92.8	97.1	98.6	98.6	95.5	100.2	102.3	99.1	95.5	106.6	118.4
Rice milling	2044	59.3	63.8	68.6	72.7	83.1	97.5	104.9	99.3	101.4	129.5	109.2	102.6
Wet corn milling	2046	24.1	74.9	74.6	97.3	96.1	103.6	103.8	100.4	101.8	112.0	110.0	122.5
Prepared feeds for animals and fowls	2047,48	51.6	89.2	96.9	95.2	101.5	103.7	107.0	108.0	108.1	110.7	108.5	115.6
Bakery products	205	82.3	93.4	95.6	100.1	93.4	91.0	93.2	89.2	89.4	90.3	91.1	92.2
Raw and refined cane sugar	2061,62	78.5	89.1	96.6	96.9	99.7	101.8	107.7	110.3	111.7	120.2	115.0	121.8
Beet sugar	2063	75.9	79.7	73.4	80.8	97.6	92.1	97.6	102.3	110.8	109.8	124.2	135.9
Malt beverages	2082	43.3	77.7	73.7	85.0	99.1	105.2	110.6	109.6	113.4	112.6	117.5	118.0
Bottled and canned soft drinks	2086	49.2	81.6	85.2	91.4	109.8	119.4	126.7	135.1	144.2	144.7	150.4	160.0
Fresh or frozen prepared fish	2092	93.3	89.4	87.8	91.2	100.0	94.6	88.9	87.4	95.6	100.1	93.2	88.1
Cigarettes, chewing and smoking tobacco	211,3	79.4	91.3	93.6	95.4	104.8	106.7	109.9	111.6	113.4	101.6	130.1	149.2
Cotton and synthetic broadwoven fabrics	221,2	58.1	91.1	94.8	101.1	100.0	103.9	108.1	113.8	118.4	125.8	134.1	142.8
Hosiery	2251,52	63.2	102.4	100.9	102.5	108.1	110.9	109.2	115.7	122.2	117.4	124.8	127.1
Yarn spinning mills	2281	55.9	86.2	89.6	93.2	98.5	103.3	106.0	105.5	114.1	120.0	125.5	133.2
Men's and boys' suits and coats	231	75.6	93.2	106.3	103.5	102.4	101.9	98.7	91.4	102.4	109.0	129.1	121.5
Housefurnishings, except curtains and draperies	2392	87.2	83.6	92.4	93.6	99.8	96.8	101.3	110.9	117.9	118.7	114.1	115.4
Sawmills and planing mills, general	2421	68.3	89.7	93.5	102.3	101.2	100.1	99.9	102.9	108.9	101.5	103.2	110.3
Hardwood dimension and flooring mills	2426	84.0	85.6	95.1	98.8	97.5	96.9	95.7	98.6	105.4	111.2	111.0	117.1
Millwork	2431	104.2	100.4	97.4	102.2	98.2	97.8	97.8	95.7	93.4	92.5	88.5	86.0
Wood kitchen cabinets	2434	80.5	91.6	87.1	85.2	97.7	91.1	93.6	92.3	102.0	101.9	101.3	102.8
Hardwood veneer and plywood	2435	80.2	83.9	84.5	83.2	99.0	98.9	92.2	93.3	104.1	106.1	90.5	84.2
Softwood veneer and plywood	2436	67.7	87.1	88.3	90.4	100.6	102.6	108.3	114.3	109.2	103.4	101.4	101.5
Wood containers	244	–	103.4	99.6	98.7	103.2	108.8	111.6	113.5	109.8	100.5	101.0	107.1
Mobile homes	2451	–	94.4	94.3	94.4	100.6	98.8	101.2	102.5	102.4	103.8	97.6	99.7
Wood household furniture	2511,17	88.5	96.9	95.0	99.6	100.8	101.2	102.5	101.3	106.5	106.2	105.7	109.1
Upholstered household furniture	2512	75.1	96.2	96.3	101.7	98.8	101.2	107.7	115.1	120.0	120.0	130.6	138.7
Metal household furniture	2514	68.7	84.9	89.4	95.3	100.2	100.7	101.4	107.2	109.5	106.8	96.1	95.1
Mattresses and bedsprings	2515	68.0	84.1	79.5	85.5	92.5	106.5	106.2	108.9	103.4	104.4	105.5	110.9
Wood office furniture	2521	82.5	99.3	99.4	96.2	95.4	95.4	97.4	101.3	107.1	104.4	104.0	103.3
Office furniture, except wood	2522	70.6	97.6	96.9	100.6	96.0	98.7	95.6	92.9	93.9	94.3	95.4	98.4
Pulp, paper, and paperboard mills	261,2,3	67.1	89.7	87.6	93.3	103.1	103.2	102.6	102.1	104.7	104.5	112.4	116.2
Corrugated and solid fiber boxes	2635	70.3	96.7	99.6	102.8	99.8	98.1	100.9	100.8	101.9	105.5	110.0	107.6
Folding paperboard boxes	2657	86.4	93.4	90.0	88.5	101.6	105.4	105.3	110.9	116.4	117.9	122.9	126.8
Paper and plastic bags	2673,74	90.7	99.9	99.7	101.8	97.7	93.7	92.2	89.5	93.9	92.0	96.5	91.7
Alkalies and chlorine	2812	38.4	66.6	70.8	97.7	101.6	92.5	92.3	86.2	87.7	84.8	84.1	87.7
Inorganic pigments	2816	72.6	81.4	84.4	88.6	103.3	107.8	104.5	98.9	107.8	107.8	115.0	108.1
Industrial inorganic chemicals, n.e.s.	2819 pt.	90.6	88.4	87.3	88.6	97.5	105.9	109.0	102.3	104.9	110.7	113.2	126.5
Synthetic fibers	2823,24	38.4	79.8	79.3	90.8	102.9	104.1	98.7	97.5	99.3	112.3	119.4	125.7
Soaps and detergents	2841	89.1	90.5	91.5	92.3	102.4	109.4	128.2	126.4	115.3	112.6	111.7	126.0
Cosmetics and other toiletries	2844	88.6	87.3	90.3	96.6	105.2	102.7	101.1	103.9	108.4	108.5	111.6	115.2
Paints and allied products	285	63.2	93.6	96.9	98.0	101.4	103.3	106.3	104.3	102.9	108.8	116.7	116.6
Industrial organic chemicals, n.e.c.	2869	73.1	89.6	87.8	92.3	110.5	110.5	99.0	92.6	91.6	88.5	96.2	93.3
Nitrogenous fertilizers	2873	65.4	101.1	100.7	90.5	101.3	103.3	107.7	108.4	111.8	117.5	111.1	107.6
Phosphatic fertilizers	2874	62.4	88.4	84.2	79.6	92.0	83.3	99.7	107.3	105.0	106.0	122.6	118.1
Fertilizers, mixing only	2875	90.5	97.8	100.8	95.1	104.7	112.4	112.8	114.6	127.1	139.1	118.9	119.9
Agricultural chemicals, n.e.c.	2879	74.3	98.8	92.9	93.2	108.4	108.9	106.2	102.2	108.4	111.0	115.6	124.9
Petroleum refining	291	84.0	78.7	84.7	94.9	105.3	109.6	109.2	106.6	111.3	120.1	123.8	133.0
Tires and inner tubes	301	56.0	88.8	89.3	92.6	102.9	103.8	103.0	102.4	107.8	116.5	124.1	131.4
Rubber and plastics hose and belting	3052	78.4	104.9	100.1	102.1	108.2	97.8	103.3	96.1	104.3	111.3	102.9	102.0
Miscellaneous plastics products, n.e.c.	308	72.8	86.4	88.2	88.9	100.1	101.1	105.3	107.5	114.0	116.2	119.8	120.2
Footwear, except rubber	314	90.7	98.8	100.3	101.9	102.3	100.9	92.8	93.1	93.3	96.4	106.0	101.2
Glass containers	3221	75.2	97.4	93.4	98.5	99.6	101.6	107.5	108.1	111.5	106.0	111.0	109.9
Cement, hydraulic	324	71.3	89.4	91.8	97.1	103.2	110.2	112.4	108.3	115.1	119.9	125.6	123.4
Clay construction products	3251,53,59	78.5	92.7	94.2	95.5	105.2	98.3	102.3	97.4	98.9	102.3	108.0	111.3
Clay refractories	3255	80.1	96.9	94.9	100.8	102.3	98.5	103.6	97.9	98.6	95.0	107.3	96.0
Concrete products	3271,72	92.5	98.3	99.5	104.4	102.1	104.8	103.8	104.9	103.2	109.3	108.6	114.3
Ready-mixed concrete	3273	99.1	92.9	93.6	96.0	100.2	101.0	100.2	96.7	98.2	96.9	93.0	95.8
Steel	331	64.2	81.3	85.8	89.7	113.5	108.5	110.5	108.2	117.7	134.0	144.6	145.4
Gray and ductile iron foundries	3321	91.3	99.1	96.9	99.3	108.0	106.9	107.9	104.6	107.7	113.1	115.5	112.4
Steel foundries	3324,25	105.8	102.4	99.5	104.9	95.5	96.3	96.9	94.8	95.6	101.5	102.2	106.2
Primary copper	3331	32.8	57.6	73.8	88.7	103.8	94.7	84.9	82.5	71.9	86.9	74.0	77.3
Primary aluminum	3334	73.6	100.7	97.6	102.7	102.3	104.8	106.5	110.6	109.7	105.7	99.0	102.2
Copper rolling and drawing	3351	77.5	84.7	86.2	92.3	93.0	89.1	90.7	86.4	83.0	89.2	96.6	96.6

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994	1995
Aluminum rolling and drawing	3353,54,55	79.0	92.3	85.7	95.8	96.3	90.6	91.2	90.3	96.5	93.9	99.6	93.9
Metal cans	3411	59.2	101.1	99.2	95.9	106.9	108.1	117.5	123.8	129.7	134.6	140.7	146.3
Hand and edge tools, n.e.c.	3423	108.6	97.9	98.8	97.1	100.5	101.0	95.0	93.1	93.1	93.3	100.8	98.4
Heating equipment, except electric	3433	78.0	91.6	91.9	96.2	113.7	105.0	114.0	119.4	121.2	121.8	130.2	131.1
Fabricated structural metal	3441	97.1	91.2	99.0	99.0	100.4	97.6	101.2	104.5	103.6	108.1	109.8	110.1
Metal doors, sash, and trim	3442	90.5	101.4	104.8	102.0	104.6	105.8	103.1	103.0	106.7	105.5	103.3	96.8
Fabricated plate work	3443	–	88.3	87.5	86.4	96.2	90.3	94.1	94.3	98.3	98.3	109.3	109.4
Bolts, nuts, rivets, and washers	3452	75.8	85.3	88.8	91.0	97.0	93.8	93.7	96.1	91.9	92.8	95.8	100.5
Automotive stampings	3465	74.9	100.5	94.5	95.7	102.8	101.8	96.1	97.3	113.8	120.8	124.9	128.4
Metal stampings, n.e.c.	3469	96.8	94.3	88.6	93.9	98.0	95.3	90.4	89.5	98.8	104.8	109.3	112.8
Valves and pipe fittings	3491,92,94	93.6	95.0	94.4	93.9	101.4	101.2	102.1	101.7	100.4	104.2	109.7	109.7
Fabricated pipe and fittings	3498	140.8	130.0	120.0	121.4	99.6	102.3	107.0	114.2	109.6	113.3	112.9	113.0
Internal combustion engines, n.e.c.	3519	83.1	90.2	92.0	98.5	106.3	113.2	108.4	103.3	101.2	104.3	119.5	124.9
Farm machinery and equipment	3523	108.6	112.7	101.6	95.7	112.8	124.0	131.8	125.3	119.1	123.7	131.4	143.4
Lawn and garden equipment	3524	70.0	79.3	82.4	93.2	97.5	93.2	94.8	95.8	108.7	114.7	116.6	126.3
Construction machinery	3531	87.9	91.6	92.2	99.1	107.6	110.2	109.6	101.0	100.6	107.0	123.2	132.9
Mining machinery	3532	102.2	90.2	93.7	95.1	102.0	107.0	98.4	90.0	90.1	109.5	99.5	109.3
Oil and gas field machinery	3533	156.9	126.0	115.2	105.9	123.1	116.1	113.9	110.9	125.7	122.1	119.9	117.5
Metal cutting machine tools	3541	101.4	87.2	89.9	92.0	94.8	99.9	99.2	94.8	113.0	111.4	110.0	111.9
Metal forming machine tools	3542	112.5	90.7	93.1	93.7	113.1	107.9	97.7	88.4	102.5	115.0	104.3	116.2
Machine tool accessories	3545	105.9	94.6	92.3	95.0	98.2	102.5	104.1	104.6	96.8	101.5	114.8	122.3
Pumps and pumping equipment	3561,94	84.0	92.0	91.9	92.7	105.7	101.3	103.4	102.5	98.6	105.2	110.6	113.4
Ball and roller bearings	3562	108.0	95.4	91.6	94.1	102.9	99.0	93.1	89.6	97.8	103.8	106.3	107.2
Air and gas compressors	3563	87.6	90.1	92.2	96.0	103.7	105.3	107.8	110.2	112.7	111.5	117.3	115.0
Refrigeration and heating equipment	3585	100.3	100.1	98.1	95.8	104.0	109.0	106.3	104.8	107.6	111.8	115.1	115.0
Carburetors, pistons, rings, and valves	3592	102.9	95.1	98.8	95.7	109.9	119.4	114.1	115.1	126.4	136.4	142.9	143.0
Transformers, except electronic	3612	100.2	95.4	97.0	99.3	102.8	104.3	107.3	110.7	126.5	121.8	143.4	159.9
Switchgear and switchboard apparatus	3613	88.2	92.2	95.1	95.9	109.1	106.5	106.5	103.9	114.6	123.1	123.8	131.7
Motors and generators	3621	89.0	93.3	94.9	96.8	102.8	103.6	100.9	104.4	111.5	127.1	124.4	139.1
Household cooking equipment	3631	61.8	92.0	90.3	104.6	116.1	96.8	99.5	104.9	100.9	103.7	127.4	125.5
Household refrigerators and freezers	3632	70.1	97.5	104.1	101.2	103.3	105.2	107.3	111.8	116.0	116.8	126.7	124.2
Household laundry equipment	3633	72.3	92.8	93.8	97.4	106.1	98.7	104.0	111.0	115.9	144.8	150.5	131.6
Household appliances, n.e.c.	3639	63.7	85.9	86.3	89.1	100.6	96.3	91.8	80.5	91.6	117.6	118.9	116.0
Electric lamp bulbs and tubes	3641	61.3	86.4	94.2	91.5	100.3	92.7	98.0	101.8	112.8	100.9	98.9	95.9
Lighting fixtures and equipment	3645,46,47,48	84.1	91.3	96.7	103.0	98.1	97.3	96.0	94.3	98.9	103.7	110.0	107.5
Household audio and video equipment	3651	22.3	84.7	96.3	106.9	106.2	120.5	124.1	135.7	151.8	163.1	179.3	225.3
Motor vehicles and equipment	371	68.7	91.1	95.3	95.1	103.2	103.3	102.4	96.7	104.3	105.4	107.3	104.4
Aircraft	3721	79.2	84.7	94.2	93.5	105.8	107.5	112.9	131.4	141.7	142.5	131.8	132.5
Instruments to measure electricity	3825	63.7	96.2	95.4	90.4	106.1	105.2	106.2	108.3	119.0	122.4	144.7	163.6
Photographic equipment and supplies	386	58.9	88.2	86.1	94.1	105.6	113.0	107.8	110.2	116.4	126.9	132.7	129.4
Railroad transportation	4011	46.5	78.0	81.5	89.2	108.4	114.6	118.5	127.8	139.6	145.6	–	–
Bus carriers, class 1	411,13,14 pts.	116.8	100.1	96.1	95.6	107.9	104.6	–	–	–	–	–	–
Trucking, except local	4213	69.5	97.3	93.8	96.8	105.2	109.4	–	–	–	–	–	–
U.S. Postal service	43	88.6	98.1	98.4	100.0	99.9	99.7	104.0	103.7	104.5	107.1	106.6	106.5
Air transportation	4512,13,22 pts.	54.3	88.8	92.0	93.8	99.5	95.8	92.9	92.5	96.9	100.2	105.8	108.4
Petroleum pipelines	4612,13	93.2	99.4	99.9	102.0	104.8	103.2	102.5	99.0	100.2	104.4	108.1	117.7
Telephone communications	481	42.7	84.5	88.9	95.0	106.2	111.6	113.3	119.8	127.7	135.2	141.6	144.6
Electric utilities	491,3 pt.	88.4	93.8	93.0	95.3	104.9	107.7	110.1	113.4	115.2	120.6	126.8	135.0
Gas utilities	492,3 pt	145.5	114.1	111.9	102.1	105.5	103.5	94.8	94.0	95.3	107.0	102.2	105.9
Scrap and waste materials	5093	–	89.1	93.4	97.7	95.4	86.0	98.6	98.9	101.7	109.4	107.7	108.9
Hardware stores	525	83.3	96.6	95.6	101.6	108.6	115.2	110.4	102.5	107.2	106.7	114.5	106.4
Department stores	531	60.8	90.4	92.6	97.4	99.2	96.9	94.2	98.2	101.2	105.0	107.1	107.6
Variety stores	533	148.9	141.9	129.2	106.7	101.9	124.5	151.3	154.3	167.7	170.4	160.5	159.3
General merchandise stores	539	–	78.6	80.9	97.5	100.8	109.8	116.4	121.8	136.1	159.9	161.6	165.9
Grocery stores	541	109.1	107.9	105.7	103.8	98.9	95.4	94.6	93.7	93.3	92.7	92.2	91.2
Retail bakeries	546	125.6	96.0	87.6	93.6	89.8	83.3	89.7	94.7	94.0	85.6	85.6	84.6
New and used car dealers	551	85.1	99.5	99.8	101.6	103.5	102.5	106.1	104.2	106.5	107.4	108.3	107.1
Auto and home supply stores	553	71.1	90.4	94.5	94.3	103.2	101.5	102.8	98.9	98.9	98.9	103.0	106.8
Gasoline service stations	554	59.5	87.0	93.5	101.8	103.0	105.1	102.6	104.3	109.7	112.4	115.0	119.2
Men's and boys' clothing stores	561	77.6	93.7	98.3	100.7	106.0	109.3	112.8	117.7	116.4	115.7	120.9	122.6
Women's clothing stores	562	58.9	98.0	99.8	107.0	97.5	99.1	100.8	101.9	110.7	116.2	118.1	122.9
Family clothing stores	565	76.2	106.2	103.1	103.3	102.4	105.5	104.9	106.9	112.3	111.6	114.9	128.4
Shoe stores	566	81.3	90.6	97.6	105.5	102.7	107.2	106.2	105.1	111.5	110.8	120.5	123.8
Furniture and homefurnishings stores	571	83.9	97.9	94.8	101.2	98.9	101.3	102.2	101.6	108.6	108.9	111.0	116.4
Household appliance stores	572	59.8	87.2	94.9	106.5	98.5	103.5	102.8	105.2	113.9	114.6	115.9	119.9
Radio, television, and computer stores	573	45.6	79.1	89.3	94.1	119.3	115.7	120.9	129.6	143.5	157.3	178.4	195.6
Eating and drinking places	58	110.3	98.9	96.2	99.3	102.8	102.2	104.0	103.1	102.4	103.1	101.4	102.2
Drug stores and proprietary stores	591	92.2	106.4	102.5	101.6	101.9	102.5	103.6	104.7	103.6	104.7	103.7	102.8
Liquor stores	592	95.0	93.6	101.9	93.8	98.2	101.1	105.2	105.9	108.4	100.5	98.7	104.4
Miscellaneous shopping goods stores	594	–	92.6	94.1	97.1	98.4	101.7	101.5	102.0	100.6	103.9	108.2	114.0
Catalog and mail-order houses	5961	–	80.6	80.8	87.2	107.3	111.4	102.1	107.2	113.8	121.0	120.0	123.9
Commercial banks	602	81.2	89.6	94.3	96.2	102.9	101.3	104.6	107.4	109.4	119.5	119.5	124.4
Hotels and motels	701	102.4	101.6	101.2	98.9	97.6	95.0	96.0	99.0	107.6	106.8	111.0	113.2
Laundry, cleaning, and garment services	721	110.8	107.5	103.3	100.8	97.2	100.5	101.0	98.7	99.9	99.9	101.9	105.1
Beauty shops	723	85.9	98.5	96.1	96.9	95.1	99.6	96.8	94.8	99.6	96.5	101.1	104.8
Automotive repair shops	753	109.4	91.7	99.4	96.2	105.7	108.1	106.9	98.7	103.3	102.9	110.4	116.4

n.e.s. = not elsewhere specified.
n.e.c. = not elsewhere classified.
– Data not available.

43. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1996				1997			
	1995	1996	I	II	III	IV	I	II	III	IV
United States	5.6	5.4	5.6	5.4	5.3	5.3	5.3	4.9	4.9	4.7
Canada	9.5	9.7	9.5	9.6	9.8	9.9	9.6	9.4	9.0	8.9
Australia	8.5	8.6	8.5	8.5	8.7	8.6	8.7	8.7	8.6	8.3
Japan	3.2	3.4	3.4	3.5	3.4	3.3	3.3	3.4	3.4	3.5
France	11.8	12.6	12.3	12.5	12.7	12.6	12.6	12.7	12.7	12.5
Germany	6.5	7.2	6.9	7.1	7.2	7.5	7.7	7.7	7.8	–
Italy[1]	12.0	12.1	12.0	12.1	12.2	12.1	12.3	12.4	12.2	12.3
Sweden	9.1	9.9	9.4	9.6	10.0	10.4	10.6	10.4	9.5	8.8
United Kingdom	8.7	8.2	8.3	8.3	8.2	7.9	7.5	7.3	6.9	6.6

[1] Quarterly rates are for the first month of the quarter.

– Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data, and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures. See "Notes on the data" for information on breaks in series. For further qualifications and historical data, see *Comparative Labor Force Statistics, 10 Countries* (Bureau of Labor Statistics, August 1996).

44. Annual data: Employment status of the working-age population, approximating U.S. concepts, 10 countries

[Numbers in thousands]

Employment status and country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Civilian labor force										
United States[1]	119,865	121,669	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943
Canada	13,631	13,900	14,151	14,329	14,408	14,482	14,663	14,832	14,928	15,145
Australia	7,758	7,974	8,228	8,444	8,490	8,562	8,619	8,776	9,001	9,127
Japan	60,050	60,860	61,920	63,050	64,280	65,040	65,470	65,780	65,990	66,450
France	23,890	23,980	24,170	24,300	24,490	24,570	24,640	24,760	24,860	25,100
Germany	28,390	28,610	28,840	29,410	29,760	30,030	29,950	29,860	29,710	29,590
Italy	22,350	22,660	22,530	22,670	22,940	22,910	22,760	22,640	22,700	22,820
Netherlands	6,500	6,310	6,430	6,640	6,750	6,950	7,090	7,190	7,270	7,320
Sweden	4,437	4,494	4,552	4,597	4,591	4,520	4,443	4,418	4,460	4,459
United Kingdom	27,870	28,270	28,580	28,730	28,610	28,410	28,310	28,280	28,480	28,620
Participation rate[2]										
United States[1]	65.6	65.9	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8
Canada	66.7	67.2	67.5	67.3	66.7	65.9	65.5	65.3	64.8	64.9
Australia	63.0	63.3	64.0	64.6	64.1	63.9	63.6	63.9	64.6	64.6
Japan	61.9	61.9	62.2	62.6	63.2	63.4	63.3	63.1	62.9	63.0
France	56.5	56.2	56.1	56.0	56.0	55.8	55.6	55.5	55.3	55.5
Germany	55.0	55.1	55.2	55.3	55.4	55.1	54.2	53.7	53.2	52.8
Italy	47.6	47.4	47.3	47.2	47.7	47.5	48.1	47.5	47.6	47.7
Netherlands	56.3	54.2	54.7	56.1	56.5	57.8	58.5	59.0	59.3	59.4
Sweden	66.4	66.9	67.3	67.4	67.0	65.7	64.5	63.9	64.3	64.3
United Kingdom	62.9	63.5	64.0	64.1	63.7	63.1	62.8	62.5	62.7	62.7
Employed										
United States[1]	112,440	114,968	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708
Canada	12,422	12,819	13,086	13,165	12,916	12,842	13,015	13,292	13,506	13,676
Australia	7,129	7,398	7,720	7,859	7,676	7,637	7,680	7,921	8,235	8,344
Japan	58,320	59,310	60,500	61,710	62,920	63,620	63,810	63,860	63,890	64,200
France	21,320	21,520	21,850	22,100	22,140	22,010	21,730	21,710	21,940	21,950
Germany	26,590	26,800	27,200	27,950	28,480	28,660	28,230	27,920	27,770	27,470
Italy	20,590	20,870	20,770	21,080	21,360	21,230	20,430	20,080	19,970	20,050
Netherlands	5,850	5,830	5,980	6,230	6,350	6,560	6,620	6,670	6,760	6,850
Sweden	4,340	4,410	4,480	4,513	4,447	4,265	4,028	3,992	4,056	4,019
United Kingdom	25,010	25,850	26,510	26,740	26,090	25,530	25,340	25,550	26,000	26,280
Employment-population ratio[3]										
United States[1]	61.5	62.3	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2
Canada	60.8	62.0	62.4	61.9	59.8	58.4	58.2	58.5	58.6	58.6
Australia	57.9	58.7	60.1	60.1	57.9	57.0	56.6	57.7	59.1	59.1
Japan	60.1	60.4	60.8	61.3	61.8	62.0	61.7	61.3	60.9	60.9
France	50.4	50.4	50.7	50.9	50.6	50.0	49.0	48.7	48.8	48.5
Germany	51.5	51.6	52.0	52.6	53.0	52.6	51.1	50.2	49.7	49.0
Italy	43.8	43.7	43.6	43.9	44.5	44.0	43.1	42.1	41.8	41.9
Netherlands	50.7	50.0	50.9	52.6	53.2	54.5	54.7	54.7	55.2	55.6
Sweden	65.0	65.7	66.2	66.1	64.9	62.0	58.5	57.6	58.4	57.9
United Kingdom	56.4	58.1	59.3	59.6	58.0	56.7	56.2	56.5	57.2	57.6
Unemployed										
United States[1]	7,425	6,701	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236
Canada	1,208	1,082	1,065	1,164	1,492	1,640	1,649	1,541	1,422	1,469
Australia	629	576	508	585	814	925	939	856	766	783
Japan	1,730	1,550	1,420	1,340	1,360	1,420	1,660	1,920	2,100	2,250
France	2,570	2,460	2,320	2,200	2,350	2,560	2,910	3,050	2,920	3,150
Germany	1,800	1,810	1,640	1,460	1,280	1,370	1,720	1,940	1,940	2,120
Italy	1,760	1,790	1,760	1,590	1,580	1,680	2,330	2,560	2,720	2,760
Netherlands	650	480	450	410	400	390	470	520	510	470
Sweden	97	84	72	84	144	255	415	426	404	440
United Kingdom	2,860	2,420	2,070	1,990	2,520	2,880	2,970	2,730	2,480	2,340
Unemployment rate										
United States[1]	6.2	5.5	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4
Canada	8.9	7.8	7.5	8.1	10.4	11.3	11.2	10.4	9.5	9.7
Australia	8.1	7.2	6.2	6.9	9.6	10.8	10.9	9.7	8.5	8.6
Japan	2.9	2.5	2.3	2.1	2.1	2.2	2.5	2.9	3.2	3.4
France	10.8	10.3	9.6	9.1	9.6	10.4	11.8	12.3	11.8	12.6
Germany	6.3	6.3	5.7	5.0	4.3	4.6	5.7	6.5	6.5	7.2
Italy	7.9	7.9	7.8	7.0	6.9	7.3	10.2	11.3	12.0	12.1
Netherlands	10.0	7.6	7.0	6.2	5.9	5.6	6.6	7.2	7.0	6.4
Sweden	2.2	1.9	1.6	1.8	3.1	5.6	9.3	9.6	9.1	9.9
United Kingdom	10.3	8.6	7.2	6.9	8.8	10.1	10.5	9.7	8.7	8.2

[1] Data for 1994 are not directly comparable with data for 1993 and earlier years. For additional information, see the box note under "Employment and Unemployment Data" in the notes to this section.

[2] Labor force as a percent of the working-age population.

[3] Employment as a percent of the working-age population.

NOTE: See "Notes on the data" for information on breaks in series for the United States, France, Italy, the Netherlands, and Sweden. Dash indicates data not available.

45. Annual indexes of manufacturing productivity and related measures, 12 countries

[1992 = 100]

Item and country	1960	1970	1973	1980	1986	1987	1988	1989	1990	1991	1993	1994	1995	1996
Output per hour														
United States	–	–	–	71.9	88.2	94.3	97.8	97.0	97.7	98.2	101.6	105.8	109.2	112.7
Canada	40.5	60.4	72.2	78.5	92.6	93.5	93.9	94.3	95.8	96.3	101.7	106.2	107.5	108.6
Japan	14.0	38.0	48.1	63.9	76.9	81.2	84.8	89.5	95.4	99.4	100.5	101.8	109.2	114.1
Belgium	17.8	32.7	42.6	64.5	87.6	88.7	91.7	96.7	96.9	99.1	104.1	110.0	109.3	–
Denmark	29.5	52.1	66.1	89.2	90.0	89.6	92.9	96.1	96.0	97.9	106.8	–	–	–
France	23.0	45.5	53.9	70.5	85.2	86.7	92.7	97.4	99.1	98.7	101.8	110.4	114.5	117.0
Germany	29.2	52.1	61.1	77.3	89.5	88.4	91.6	94.4	99.0	102.0	100.4	108.0	111.1	115.7
Italy	19.6	36.8	43.9	64.0	82.6	85.0	86.6	89.4	92.8	95.3	104.5	107.4	110.7	113.3
Netherlands	19.6	38.6	48.9	70.0	91.2	91.9	93.9	97.3	98.6	99.6	102.1	112.1	115.9	–
Norway	36.7	57.8	67.6	76.7	89.0	93.3	92.1	94.6	96.6	97.5	100.6	101.4	102.5	103.3
Sweden	27.6	52.8	62.1	74.0	88.5	90.1	90.8	93.8	95.0	95.0	106.7	116.1	122.0	124.8
United Kingdom	30.5	43.7	51.9	54.9	74.7	78.8	83.1	87.1	90.1	94.4	105.6	108.7	107.7	107.5
Output														
United States	–	–	–	77.4	91.0	97.9	104.4	104.0	102.5	98.8	103.0	109.8	113.6	116.7
Canada	34.2	61.0	77.6	85.9	99.3	104.1	109.4	110.3	106.2	98.7	104.8	112.8	117.1	118.6
Japan	10.7	38.8	50.0	59.9	74.9	78.4	84.6	90.2	96.3	101.4	96.0	95.4	100.5	105.0
Belgium	30.7	57.5	70.6	78.2	89.0	88.7	93.1	98.9	101.0	100.7	96.9	101.4	104.4	–
Denmark	40.1	66.8	78.1	89.7	101.7	97.6	99.1	100.3	99.3	99.2	101.1	103.0	105.9	105.6
France	32.4	66.9	80.1	92.7	91.2	91.1	96.3	101.6	103.5	101.7	96.2	101.3	105.4	106.2
Germany	41.5	70.9	78.5	85.3	89.7	88.0	90.9	94.0	99.1	102.8	91.5	93.1	93.4	92.9
Italy	21.5	44.8	54.1	78.7	84.8	88.5	94.8	98.6	100.4	99.7	96.8	101.9	107.7	106.8
Netherlands	31.8	59.7	67.9	77.6	88.1	89.3	92.7	96.9	100.1	100.6	98.3	103.3	105.8	–
Norway	56.6	89.1	102.2	103.6	108.1	110.7	105.3	101.3	100.2	98.3	102.7	106.7	109.9	112.9
Sweden	46.5	81.7	88.5	91.8	105.2	107.7	110.2	111.6	110.6	103.6	101.3	115.7	127.0	129.8
United Kingdom	68.4	91.2	100.6	88.1	91.1	95.3	102.0	106.6	106.4	100.6	101.4	105.6	108.0	108.5
Total hours														
United States	92.2	104.5	110.5	107.6	103.1	103.9	106.8	107.2	104.9	100.6	101.4	103.8	104.1	103.5
Canada	84.5	100.9	107.5	109.5	107.2	111.4	116.5	117.0	110.8	102.5	103.0	106.2	108.9	109.1
Japan	76.3	102.3	104.0	93.8	97.3	96.6	99.8	100.8	100.9	102.0	95.6	93.7	92.0	92.0
Belgium	172.1	176.3	165.6	121.4	101.6	100.0	101.5	102.3	104.3	101.6	93.2	92.2	95.6	–
Denmark	135.8	128.3	118.1	100.6	113.1	109.0	106.6	104.3	103.3	101.3	94.7	–	–	–
France	140.6	147.0	148.7	131.5	107.2	105.1	104.0	104.4	104.5	103.0	94.5	91.8	92.0	90.8
Germany	142.4	136.1	128.4	110.3	100.1	99.6	99.2	99.5	100.1	100.8	91.1	86.2	84.0	80.3
Italy	109.6	121.8	123.4	123.0	102.7	104.1	109.5	110.2	108.2	104.6	92.4	94.8	97.2	94.3
Netherlands	162.7	154.5	138.7	111.0	96.6	97.2	98.7	99.6	101.6	101.0	96.3	92.2	91.3	–
Norway	154.0	154.3	151.2	135.0	121.6	118.6	114.3	107.1	103.7	100.8	102.1	105.2	107.2	109.3
Sweden	168.3	154.7	142.5	124.0	118.9	119.5	121.4	119.0	116.4	109.0	94.9	99.6	104.1	104.0
United Kingdom	224.4	208.6	194.0	160.3	121.9	120.9	122.7	122.3	118.0	106.6	96.0	97.2	100.3	100.9
Compensation per hour														
United States	14.9	23.8	28.6	55.8	78.6	80.8	84.0	86.8	91.0	95.7	102.4	105.1	108.8	112.0
Canada	10.5	18.3	22.9	50.2	77.5	79.8	83.3	86.4	91.3	97.1	100.1	102.1	103.9	108.5
Japan	4.3	16.5	26.8	58.6	76.1	77.9	79.2	84.2	90.7	95.9	104.6	106.7	110.0	111.6
Belgium	5.5	14.1	21.6	52.5	77.2	79.0	80.6	84.8	89.6	95.3	105.0	108.4	111.7	–
Denmark	4.6	13.2	20.4	49.4	72.9	79.7	82.5	87.2	92.6	96.2	102.4	–	–	–
France	4.3	10.5	14.9	41.3	76.8	79.7	82.7	87.2	91.8	96.3	103.6	106.2	107.7	110.0
Germany	8.1	20.8	29.1	53.8	73.1	76.6	79.6	83.4	89.4	95.1	106.1	112.1	117.5	123.4
Italy	1.6	4.6	7.0	27.9	62.6	66.1	68.7	75.5	84.0	93.1	107.1	106.6	109.2	117.1
Netherlands	6.4	20.4	31.8	64.8	85.2	87.9	87.6	88.4	90.8	95.2	103.8	107.1	109.9	–
Norway	4.7	11.8	17.0	39.0	69.1	78.5	83.3	87.2	92.3	97.5	101.5	104.4	109.2	114.0
Sweden	4.1	10.8	15.2	37.4	63.1	67.3	71.7	79.4	87.6	95.4	98.0	101.1	107.4	114.3
United Kingdom	3.1	6.5	9.7	33.9	59.7	66.3	70.6	75.2	83.5	93.1	106.6	109.9	110.8	115.0
Unit labor costs: National currency basis														
United States	–	–	–	77.6	89.1	85.7	85.9	89.4	93.1	97.5	100.8	99.4	99.7	99.3
Canada	25.9	30.3	31.8	63.9	83.6	85.3	88.7	91.7	95.2	100.9	98.4	96.1	96.7	99.9
Japan	30.9	43.3	55.7	91.7	99.0	96.0	93.4	94.0	95.0	96.5	104.1	104.9	100.7	97.8
Belgium	31.1	43.1	50.6	81.4	88.1	89.1	87.9	87.8	92.5	96.1	100.9	98.6	102.2	–
Denmark	15.5	25.3	30.8	55.3	81.0	89.0	88.8	90.7	96.5	98.3	95.9	97.9	102.2	104.9
France	18.7	23.0	27.6	58.6	90.2	92.0	89.3	89.5	92.6	97.6	101.8	96.2	94.0	94.0
Germany	28.0	39.9	47.6	69.6	81.6	86.7	86.9	88.3	90.3	93.2	105.6	103.9	105.7	106.6
Italy	8.0	12.6	16.0	43.7	75.8	77.8	79.4	84.4	90.5	97.7	102.5	99.2	98.6	103.3
Netherlands	32.9	52.7	65.0	92.6	93.4	95.7	93.3	90.8	92.1	95.5	101.7	95.5	94.9	–
Norway	12.9	20.4	25.1	50.8	77.7	84.1	90.4	92.2	95.6	100.0	100.9	102.9	106.5	110.3
Sweden	14.9	20.5	24.4	50.6	71.3	74.7	79.0	84.7	92.3	100.4	91.8	87.0	88.0	91.6
United Kingdom	10.3	14.8	18.7	61.7	79.9	84.1	84.9	86.3	92.6	98.6	101.0	101.1	102.9	107.0
Unit labor costs: U.S. dollar basis														
United States	–	–	–	77.6	89.1	85.7	85.9	89.4	93.1	97.5	100.8	99.4	99.7	99.3
Canada	32.3	35.1	38.4	66.1	72.7	77.8	87.1	93.6	98.6	106.4	92.1	85.0	85.2	88.5
Japan	10.9	15.3	26.1	51.5	74.5	84.2	92.4	86.3	83.1	90.9	118.8	130.1	135.9	114.0
Belgium	20.0	27.9	41.9	89.6	63.4	76.7	76.8	71.6	88.9	90.4	93.8	94.8	111.5	–
Denmark	13.5	20.4	30.9	59.4	60.4	78.4	79.5	74.8	94.1	92.7	89.2	93.0	110.2	109.1
France	20.2	22.0	32.9	73.5	69.0	81.0	79.3	74.3	90.0	91.5	95.1	91.8	99.8	97.3
Germany	10.5	17.1	28.1	59.9	58.7	75.3	77.2	73.3	87.2	87.7	99.7	100.0	115.3	110.7
Italy	15.9	24.7	34.0	62.9	62.6	73.9	75.1	75.8	93.0	97.0	80.3	75.8	74.6	82.5
Netherlands	15.4	25.6	41.1	82.0	67.1	83.0	83.0	75.3	88.9	89.8	96.2	92.4	104.0	–
Norway	11.3	17.8	27.2	63.9	65.3	77.5	86.1	82.9	95.0	95.7	88.3	90.7	104.5	108.1
Sweden	16.8	23.0	32.7	69.6	58.3	68.5	75.0	76.4	90.8	96.6	68.6	65.7	71.8	79.6
United Kingdom	16.3	20.0	25.9	81.3	66.4	78.0	85.6	80.0	93.5	98.7	85.9	87.7	91.9	94.5

– Data not available.

46. Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]
PRIVATE SECTOR[5]												
Total cases	7.9	7.9	8.3	8.6	8.6	8.8	8.4	8.9	8.5	8.4	8.1	7.4
Lost workday cases	3.6	3.6	3.8	4.0	4.0	4.1	3.9	3.9	3.8	3.8	3.6	3.4
Lost workdays	64.9	65.8	69.9	76.1	78.7	84.0	86.5	93.8	–	–	–	–
Agriculture, forestry, and fishing[5]												
Total cases	11.4	11.2	11.2	10.9	10.9	11.6	10.8	11.6	11.2	10.0	9.7	8.7
Lost workday cases	5.7	5.6	5.7	5.6	5.7	5.9	5.4	5.4	5.0	4.7	4.3	3.9
Lost workdays	91.3	93.6	94.1	101.8	100.9	112.2	108.3	126.9	–	–	–	–
Mining												
Total cases	8.4	7.4	8.5	8.8	8.5	8.3	7.4	7.3	6.8	6.3	6.2	5.4
Lost workday cases	4.8	4.1	4.9	5.1	4.8	5.0	4.5	4.1	3.9	3.9	3.9	3.2
Lost workdays	145.3	125.9	144.0	152.1	137.2	119.5	129.6	204.7	–	–	–	–
Construction												
Total cases	15.2	15.2	14.7	14.6	14.3	14.2	13.0	13.1	12.2	11.8	10.6	9.9
Lost workday cases	6.8	6.9	6.8	6.8	6.8	6.7	6.1	5.8	5.5	5.5	4.9	4.5
Lost workdays	128.9	134.5	135.8	142.2	143.3	147.9	148.1	161.9	–	–	–	–
General building contractors:												
Total cases	15.2	14.9	14.2	14.0	13.9	13.4	12.0	12.2	11.5	10.9	9.8	9.0
Lost workday cases	6.8	6.6	6.5	6.4	6.5	6.4	5.5	5.4	5.1	5.1	4.4	4.0
Lost workdays	120.4	122.7	134.0	132.2	137.3	137.6	132.0	142.7	–	–	–	–
Heavy construction, except building:												
Total cases	14.5	14.7	14.5	15.1	13.8	13.8	12.8	12.1	11.1	10.2	9.9	9.0
Lost workday cases	6.3	6.3	6.4	7.0	6.5	6.3	6.0	5.4	5.1	5.0	4.8	4.3
Lost workdays	127.3	132.9	139.1	162.3	147.1	144.6	160.1	165.8	–	–	–	–
Special trades contractors:												
Total cases	15.4	15.6	15.0	14.7	14.6	14.7	13.5	13.8	12.8	12.5	11.1	10.4
Lost workday cases	7.0	7.2	7.1	7.0	6.9	6.9	6.3	6.1	5.8	5.8	5.0	4.8
Lost workdays	133.3	140.4	135.7	141.1	144.9	153.1	151.3	168.3	–	–	–	–
Manufacturing												
Total cases	10.4	10.6	11.9	13.1	13.1	13.2	12.7	12.5	12.1	12.2	11.6	10.6
Lost workday cases	4.6	4.7	5.3	5.7	5.8	5.8	5.6	5.4	5.3	5.5	5.3	4.9
Lost workdays	80.2	85.2	95.5	107.4	113.0	120.7	121.5	124.6	–	–	–	–
Durable goods:												
Total cases	10.9	11.0	12.5	14.2	14.1	14.2	13.6	13.4	13.1	13.5	12.8	11.6
Lost workday cases	4.7	4.8	5.4	5.9	6.0	6.0	5.7	5.5	5.4	5.7	5.6	5.1
Lost workdays	82.0	87.1	96.8	111.1	116.5	123.3	122.9	126.7	–	–	–	–
Lumber and wood products:												
Total cases	18.5	18.9	18.9	19.5	18.4	18.1	16.8	16.3	15.9	15.7	14.9	14.2
Lost workday cases	9.3	9.7	9.6	10.0	9.4	8.8	8.3	7.6	7.6	7.7	7.0	6.8
Lost workdays	171.4	177.2	176.5	189.1	177.5	172.5	172.0	165.8	–	–	–	–
Furniture and fixtures:												
Total cases	15.0	15.2	15.4	16.6	16.1	16.9	15.9	14.8	14.6	15.0	13.9	12.2
Lost workday cases	6.3	6.3	6.7	7.3	7.2	7.8	7.2	6.6	6.5	7.0	6.4	5.4
Lost workdays	100.4	103.0	103.6	115.7	–	–	–	128.4	–	–	–	–
Stone, clay, and glass products:												
Total cases	13.9	13.6	14.9	16.0	15.5	15.4	14.8	13.6	13.8	13.2	12.3	12.4
Lost workday cases	6.7	6.5	7.1	7.5	7.4	7.3	6.8	6.1	6.3	6.5	5.7	6.0
Lost workdays	127.8	126.0	135.8	141.0	149.8	160.5	156.0	152.2	–	–	–	–
Primary metal industries:												
Total cases	12.6	13.6	17.0	19.4	18.7	19.0	17.7	17.5	17.0	16.8	16.5	15.0
Lost workday cases	5.7	6.1	7.4	8.2	8.1	8.1	7.4	7.1	7.3	7.2	7.2	6.8
Lost workdays	113.8	125.5	145.8	161.3	168.3	180.2	169.1	175.5	–	–	–	–
Fabricated metal products:												
Total cases	16.3	16.0	17.0	18.8	18.5	18.7	17.4	16.8	16.2	16.4	15.8	14.4
Lost workday cases	6.9	6.8	7.2	8.0	7.9	7.9	7.1	6.6	6.7	6.7	6.9	6.2
Lost workdays	110.1	115.5	121.9	138.8	147.6	155.7	146.6	144.0	–	–	–	–
Industrial machinery and equipment:												
Total cases	10.8	10.7	11.3	12.1	12.1	12.0	11.2	11.1	11.1	11.6	11.2	9.9
Lost workday cases	4.2	4.2	4.4	4.7	4.8	4.7	4.4	4.2	4.2	4.4	4.4	4.0
Lost workdays	69.3	72.0	72.7	82.8	86.8	88.9	86.6	87.7	–	–	–	–
Electronic and other electrical equipment:												
Total cases	6.4	6.4	7.2	8.0	9.1	9.1	8.6	8.4	8.3	8.3	7.6	6.8
Lost workday cases	2.7	2.7	3.1	3.3	3.9	3.8	3.7	3.6	3.5	3.6	3.3	3.1
Lost workdays	45.7	49.8	55.9	64.6	77.5	79.4	83.0	81.2	–	–	–	–
Transportation equipment:												
Total cases	9.0	9.6	13.5	17.7	17.7	17.8	18.3	18.7	18.5	19.6	18.6	16.3
Lost workday cases	3.9	4.1	5.7	6.6	6.8	6.9	7.0	7.1	7.1	7.8	7.9	7.0
Lost workdays	71.6	79.1	105.7	134.2	138.6	153.7	166.1	186.6	–	–	–	–
Instruments and related products:												
Total cases	5.2	5.3	5.8	6.1	5.6	5.9	6.0	5.9	5.6	5.9	5.3	5.1
Lost workday cases	2.2	2.3	2.4	2.6	2.5	2.7	2.7	2.7	2.5	2.7	2.4	2.3
Lost workdays	37.9	42.2	43.9	51.5	55.4	57.8	64.4	65.3	–	–	–	–
Miscellaneous manufacturing industries:												
Total cases	9.7	10.2	10.7	11.3	11.1	11.3	11.3	10.7	10.0	9.9	9.1	9.5
Lost workday cases	4.2	4.3	4.6	5.1	5.1	5.1	5.1	5.0	4.6	4.5	4.3	4.4
Lost workdays	73.2	70.9	81.5	91.0	97.6	113.1	104.0	108.2	–	–	–	–

See footnotes at end of table.

46. Continued—Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]
Nondurable goods:												
Total cases	9.6	10.0	11.1	11.4	11.6	11.7	11.5	11.3	10.7	10.5	9.9	9.2
Lost workday cases	4.4	4.6	5.1	5.4	5.5	5.6	5.5	5.3	5.0	5.1	4.9	4.6
Lost workdays	77.6	82.3	93.5	101.7	107.8	116.9	119.7	121.8	–	–	–	–
Food and kindred products:												
Total cases	16.7	16.5	17.7	18.5	18.5	20.0	19.5	18.8	17.6	17.1	16.3	15.0
Lost workday cases	8.1	8.0	8.6	9.2	9.3	9.9	9.9	9.5	8.9	9.2	8.7	8.0
Lost workdays	138.0	137.8	153.7	169.7	174.7	202.6	207.2	211.9	–	–	–	–
Tobacco products:												
Total cases	7.3	6.7	8.6	9.3	8.7	7.7	6.4	6.0	5.8	5.3	5.6	6.7
Lost workday cases	3.0	2.5	2.5	2.9	3.4	3.2	2.8	2.4	2.3	2.4	2.6	2.8
Lost workdays	51.7	45.6	46.4	53.0	64.2	62.3	52.0	42.9	–	–	–	–
Textile mill:												
Total cases	7.5	7.8	9.0	9.6	10.3	9.6	10.1	9.9	9.7	8.7	8.2	7.8
Lost workday cases	3.0	3.1	3.6	4.0	4.2	4.0	4.4	4.2	4.1	4.0	4.1	3.6
Lost workdays	57.4	59.3	65.9	78.8	81.4	85.1	88.3	87.1	–	–	–	–
Apparel and other textile products:												
Total cases	6.7	6.7	7.4	8.1	8.6	8.8	9.2	9.5	9.0	8.9	8.2	7.4
Lost workday cases	2.6	2.7	3.1	3.5	3.8	3.9	4.2	4.0	3.8	3.9	3.6	3.3
Lost workdays	44.1	49.4	59.5	68.2	80.5	92.1	99.9	104.6	–	–	–	–
Paper and allied products:												
Total cases	10.2	10.5	12.8	13.1	12.7	12.1	11.2	11.0	9.9	9.6	8.5	7.9
Lost workday cases	4.7	4.7	5.8	5.9	5.8	5.5	5.0	5.0	4.6	4.5	4.2	3.8
Lost workdays	94.6	99.5	122.3	124.3	132.9	124.8	122.7	125.9	–	–	–	–
Printing and publishing:												
Total cases	6.3	6.5	6.7	6.6	6.9	6.9	6.7	7.3	6.9	6.7	6.4	6.0
Lost workday cases	2.9	2.9	3.1	3.2	3.3	3.3	3.2	3.2	3.1	3.0	3.0	2.8
Lost workdays	49.2	50.8	55.1	59.8	63.8	69.8	74.5	74.8	–	–	–	–
Chemicals and allied products:												
Total cases	5.1	6.3	7.0	7.0	7.0	6.5	6.4	6.0	5.9	5.7	5.5	4.8
Lost workday cases	2.3	2.7	3.1	3.3	3.2	3.1	3.1	2.8	2.7	2.8	2.7	2.4
Lost workdays	38.8	49.4	58.8	59.0	63.4	61.6	62.4	64.2	–	–	–	–
Petroleum and coal products:												
Total cases	5.1	7.1	7.3	7.0	6.6	6.6	6.2	5.9	5.2	4.7	4.8	4.6
Lost workday cases	2.4	3.2	3.1	3.2	3.3	3.1	2.9	2.8	2.5	2.3	2.4	2.5
Lost workdays	49.9	67.5	65.9	68.4	68.1	77.3	68.2	71.2	–	–	–	–
Rubber and miscellaneous plastics products:												
Total cases	13.4	14.0	15.9	16.3	16.2	16.2	15.1	14.5	13.9	14.0	12.9	12.3
Lost workday cases	6.3	6.6	7.6	8.1	8.0	7.8	7.2	6.8	6.5	6.7	6.5	6.3
Lost workdays	107.4	118.2	130.8	142.9	147.2	151.3	150.9	153.3	–	–	–	–
Leather and leather products:												
Total cases	10.3	10.5	12.4	11.4	13.6	12.1	12.5	12.1	12.1	12.0	11.4	10.7
Lost workday cases	4.6	4.8	5.8	5.6	6.5	5.9	5.9	5.4	5.5	5.3	4.8	4.5
Lost workdays	88.3	83.4	114.5	128.2	130.4	152.3	140.8	128.5	–	–	–	–
Transportation and public utilities												
Total cases	8.6	8.2	8.4	8.9	9.2	9.6	9.3	9.1	9.5	9.3	9.1	8.7
Lost workday cases	5.0	4.8	4.9	5.1	5.3	5.5	5.4	5.1	5.4	5.5	5.2	5.1
Lost workdays	107.1	102.1	108.1	118.6	121.5	134.1	140.0	144.0	–	–	–	–
Wholesale and retail trade												
Total cases	7.4	7.7	7.7	7.8	8.0	7.9	7.6	8.4	8.1	7.9	7.5	6.8
Lost workday cases	3.2	3.3	3.4	3.5	3.6	3.5	3.4	3.5	3.4	3.4	3.2	2.9
Lost workdays	50.7	54.0	56.1	60.9	63.5	65.6	72.0	80.1	–	–	–	–
Wholesale trade:												
Total cases	7.2	7.2	7.4	7.6	7.7	7.4	7.2	7.6	7.8	7.7	7.5	6.6
Lost workday cases	3.5	3.6	3.7	3.8	4.0	3.7	3.7	3.6	3.7	3.8	3.6	3.4
Lost workdays	59.8	62.5	64.0	69.2	71.9	71.5	79.2	82.4	–	–	–	–
Retail trade:												
Total cases	7.5	7.8	7.8	7.9	8.1	8.1	7.7	8.7	8.2	7.9	7.5	6.9
Lost workday cases	3.1	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.0	2.8
Lost workdays	47.0	50.5	52.9	57.6	60.0	63.2	69.1	79.2	–	–	–	–
Finance, insurance, and real estate												
Total cases	2.0	2.0	2.0	2.0	2.0	2.4	2.4	2.9	2.9	2.7	2.6	2.4
Lost workday cases	.9	.9	.9	.9	.9	1.1	1.1	1.2	1.2	1.1	1.0	.9
Lost workdays	15.4	17.1	14.3	17.2	17.6	27.3	24.1	32.9	–	–	–	–
Services												
Total cases	5.4	5.3	5.5	5.4	5.5	6.0	6.2	7.1	6.7	6.5	6.4	6.0
Lost workday cases	2.6	2.5	2.7	2.6	2.7	2.8	2.8	3.0	2.8	2.8	2.8	2.6
Lost workdays	45.4	43.0	45.8	47.7	51.2	56.4	60.0	68.6	–	–	–	–

[1] Data for 1989 and subsequent years are based on the *Standard Industrial Classification Manual*, 1987 Edition. For this reason, they are not strictly comparable with data for the years 1985–88, which were based on the *Standard Industrial Classification Manual*, 1972 Edition, 1977 Supplement.

[2] Beginning with the 1992 survey, the annual survey measures only nonfatal injuries and illnesses, while past surveys covered both fatal and nonfatal incidents. To better address fatalities, a basic element of workplace safety, BLS implemented the Census of Fatal Occupational Injuries.

[3] The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as (N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays;
EH = total hours worked by all employees during the calendar year; and
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[4] Beginning with the 1993 survey, lost workday estimates will not be generated. As of 1992, BLS began generating percent distributions and the median number of days away from work by industry and for groups of workers sustaining similar work disabilities.

[5] Excludes farms with fewer than 11 employees since 1976.

– Data not available.

47. Fatal occupational injuries by event or exposure, 1992–96

Event or exposure[1]	Fatalities					
	1992	1993	1994	1995	1996	
	Number	Number	Number	Number	Number	Percent
Total	6,217	6,331	6,632	6,275	6,112	100
Transportation incidents	2,484	2,499	2,762	2,588	2,556	42
Highway incident	1,158	1,242	1,343	1,345	1,324	22
Collision between vehicles, mobile equipment	578	659	654	642	656	11
Moving in same direction	78	100	120	127	95	2
Moving in opposite directions, oncoming	201	245	230	246	214	4
Moving in intersection	107	123	144	99	153	3
Vehicle struck stationary object or equipment	192	189	255	275	240	4
Noncollision incident	301	336	373	351	348	6
Jackknifed or overturned—no collision	213	236	274	261	264	4
Nonhighway (farm, industrial premises) incident	436	392	409	389	369	6
Overturned	208	214	226	210	204	3
Worker struck by vehicle	346	365	391	388	349	6
Railway incident	66	86	81	82	75	1
Water vehicle incident	109	119	94	87	107	2
Aircraft incident	353	282	426	283	320	5
Assaults and violent acts	1,281	1,329	1,321	1,280	1,144	19
Homicides	1,044	1,074	1,080	1,036	912	15
Hitting, kicking, beating	52	35	47	46	47	1
Shooting	852	884	934	762	751	12
Stabbing	90	95	60	67	79	1
Self-inflicted injuries	205	222	214	221	199	3
Contact with objects and equipment	1,004	1,045	1,017	916	1,005	16
Struck by object	557	565	590	547	579	9
Struck by falling object	361	346	372	341	402	7
Struck by flying object	77	81	68	63	58	1
Caught in or compressed by equipment or objects	316	311	280	255	283	5
Caught in running equipment or machinery	159	151	147	131	146	2
Caught in or crushed in collapsing materials	110	138	132	99	130	2
Falls	600	618	665	650	684	11
Fall to lower level	507	534	580	577	607	10
Fall from ladder	78	76	86	97	95	2
Fall from roof	108	120	129	143	148	2
Fall from scaffold, staging	66	71	89	82	88	1
Fall on same level	62	49	63	53	49	1
Exposure to harmful substances or environments	605	592	641	609	523	9
Contact with electric current	334	325	348	348	279	5
Contact with overhead power lines	140	115	132	139	116	2
Contact with temperature extremes	33	38	50	56	32	1
Exposure to caustic, noxious, or allergenic substances	127	116	133	107	119	2
Inhalation of substances	83	68	84	62	75	1
Oxygen deficiency	111	112	109	97	92	2
Drowning, submersion	78	90	89	77	67	1
Fires and explosions	167	204	202	207	184	3
Other events or exposures[2]	76	44	24	25	16	–

[1] Based on the 1992 BLS Occupational Injury and Illness Classification Structures.

[2] Includes the category "Bodily reaction and exertion."

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding. Dashes indicate less that 0.5 percent or data that are not available or that do not meet publication criteria.

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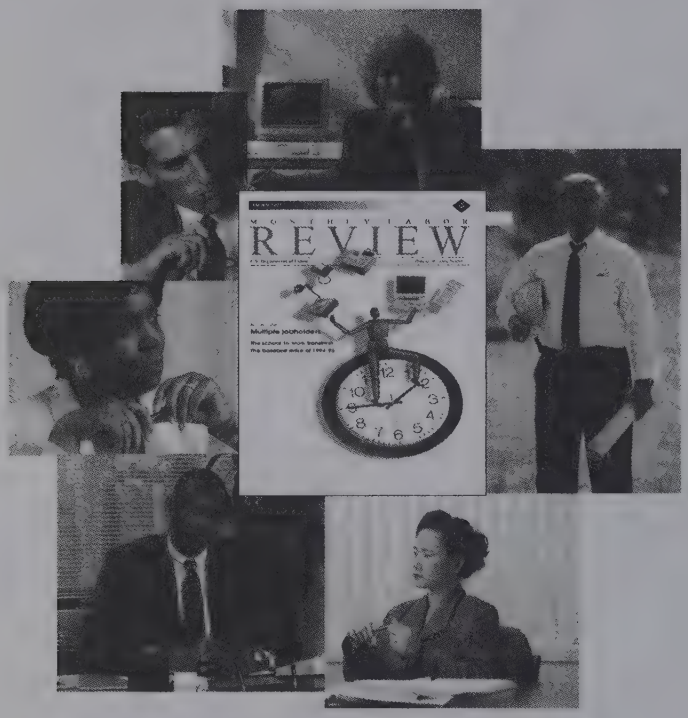

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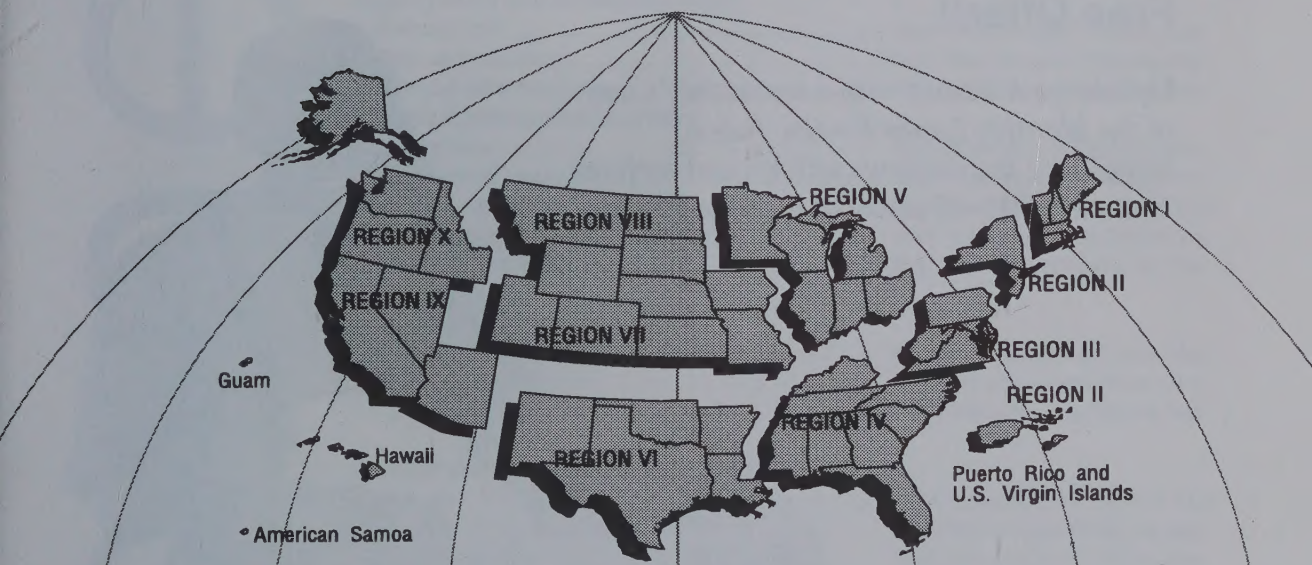

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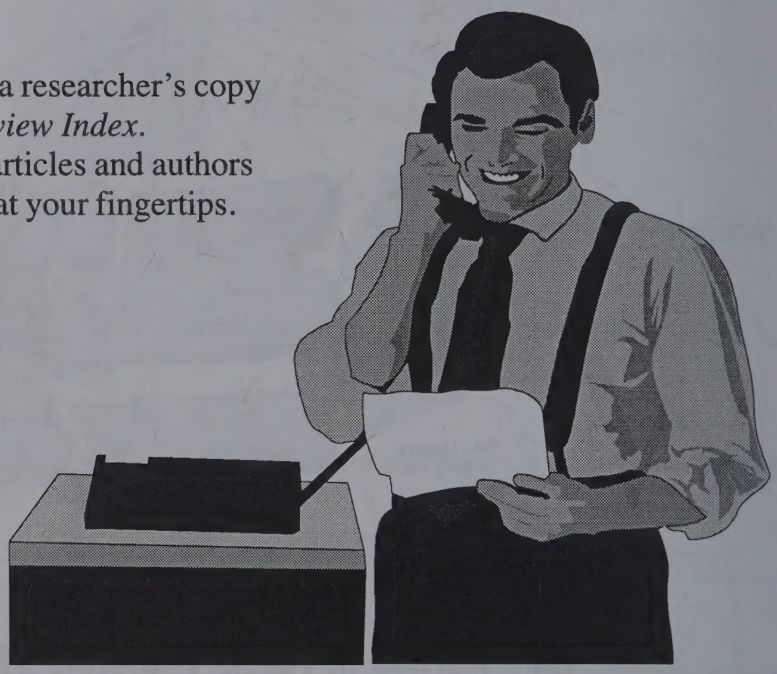

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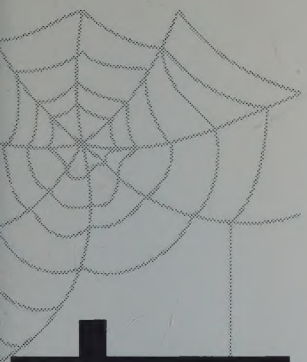

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